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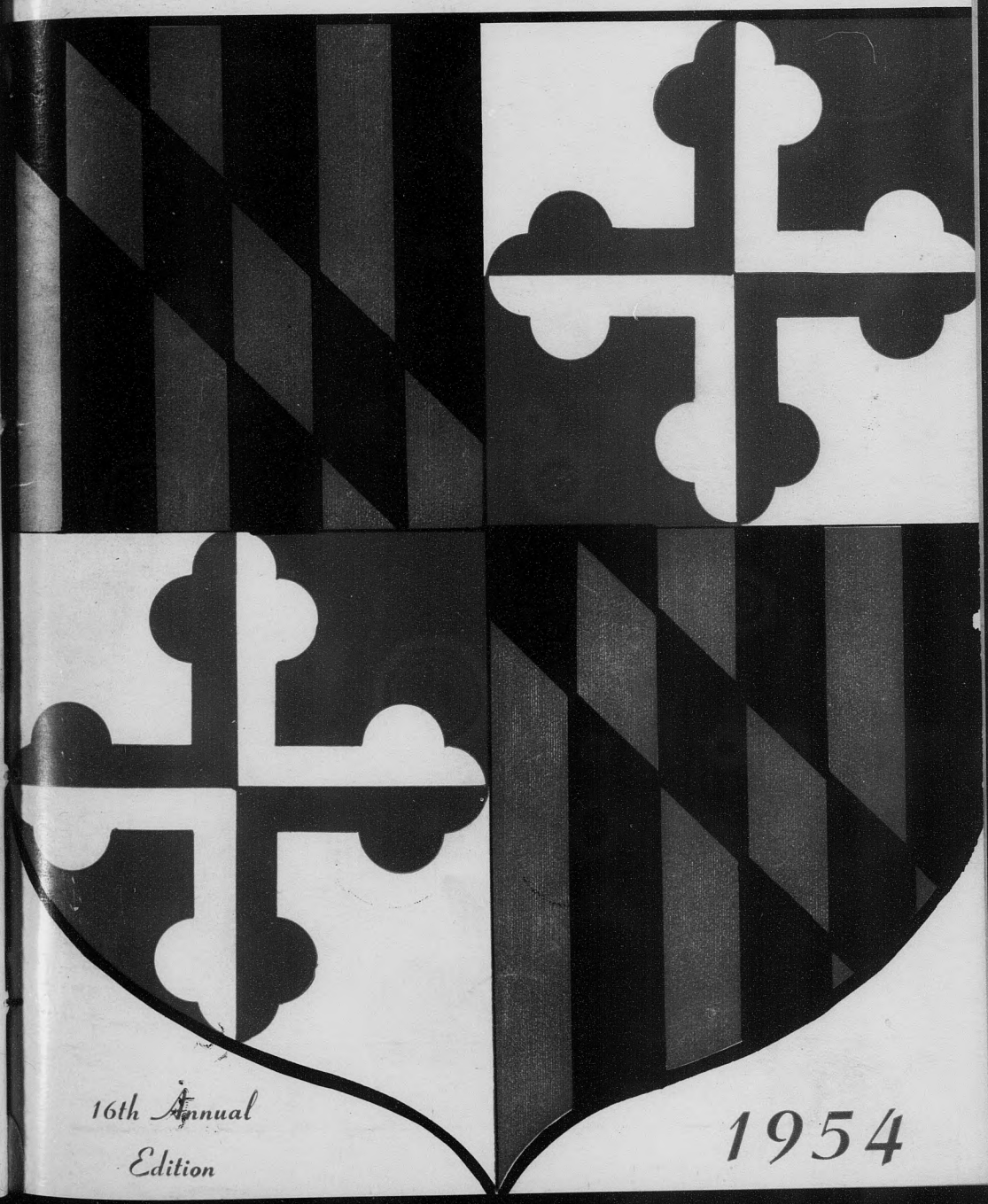
MARYLAND POULTRY REFERENCE BOOK



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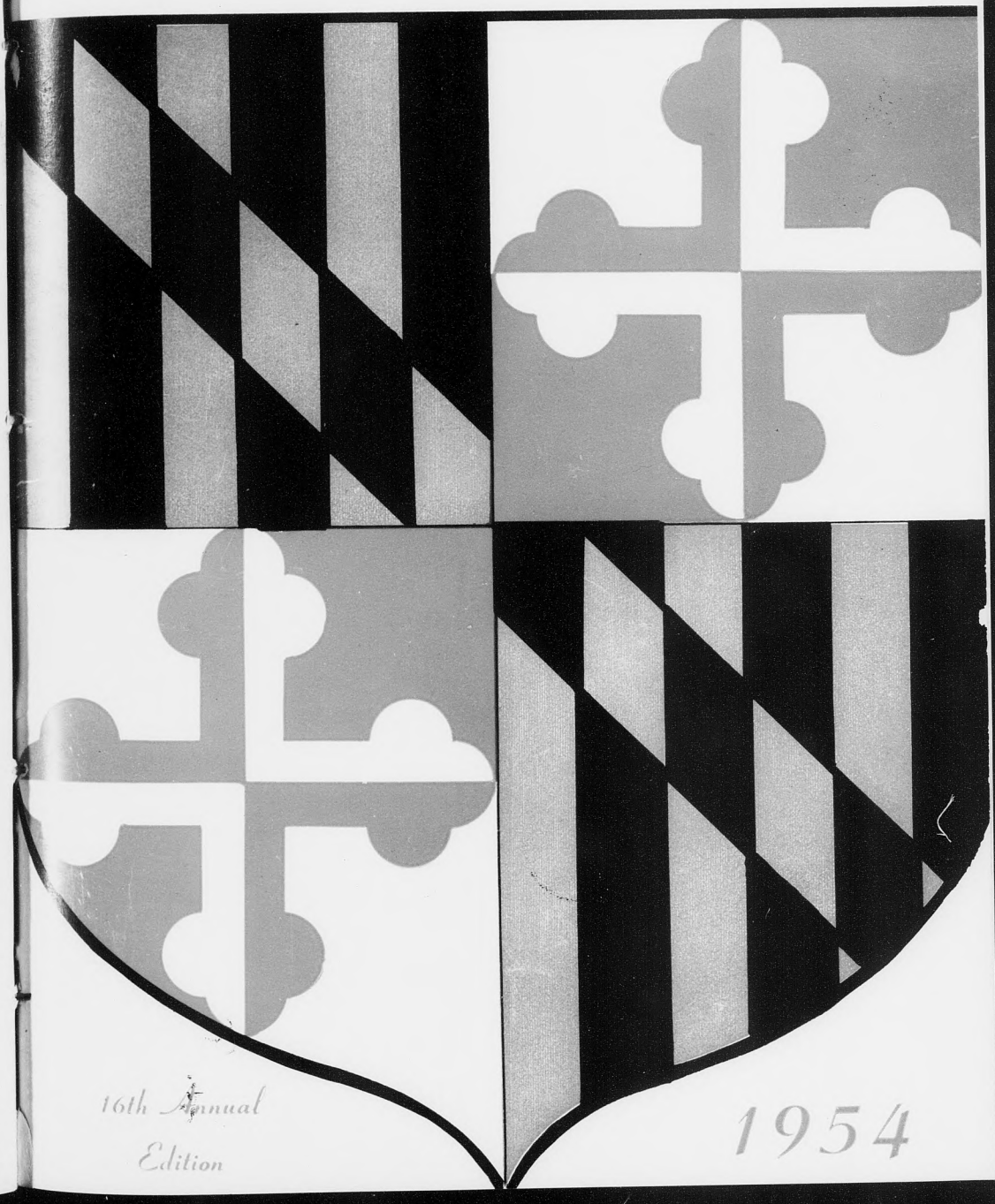

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Maryland Poultry Reference Book

Dedicated To

JOHN W. SNODDY

RIVERDALE, MD.

Born in Hamblen County, Tennessee, in 1880, and educated in its public schools and at Carson-Newman College, Mr. Snoddy developed such superior mechanical ability that he was given a position of high responsibility in the gun works of the Washington Navy Yard during World Wars I and II.

In 1933 he acquired a small farm at Wildercroft near Riverdale, Maryland, where he indulged in his love of poultry acquired in early youth and nurtured through the years.

A successful poultry producer and able leader, he became active in local and State poultry affairs, serving as president of his local poultry association and as President of the Maryland State Poultry Council for three years. Always a vigorous campaigner for truth and honesty, he played a prominent part in securing passage and funds for enforcing the Maryland Fresh, Inedible, and Egg Grading laws.

For his outstanding work with young farmers he holds an honorary life membership in the Future Farmers of America. Also, an active leader in fraternal circles he has won many honors in his lodges.

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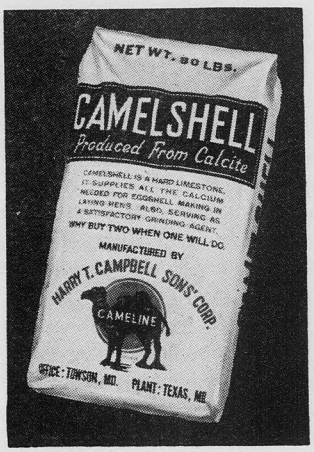

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Special Interest Section

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FS 42—What to Look for When Buying a Farm.
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EB-126—Feeding Chickens.
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FS 74—Keeping Poultry Comfortable in Hot Weather.
FS 56—Let's Try Barbecued Broilers.
FS 59—Managing Pullets for Egg Production.
A-64—Market Area for Delmarva Broilers.
EB-108—Maryland Grades for Eggs.
FS 40—More Money from Your Eggs.
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A-65—Quality Changes in Shell Eggs in Carlot Shipments and in Storage.
EB-115—Raising Turkeys for Market.
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A-70—Relation of Various Egg Marketing Methods to Producer Returns in Maryland.
FS 38—Selecting a Good Egg Market.
EB-97—Selecting Poultry Breeding Stock for Profitable Meat Production.
FS 47—Ten Ways to Save Labor on Poultry Farms.
A-57—The Delmarva Broiler Industry.
A-52—The Marketing of Hatchery Eggs, Chicks and Broilers in the Delmarva Area.

Agricultural Engineering

M—Farm Elevator.
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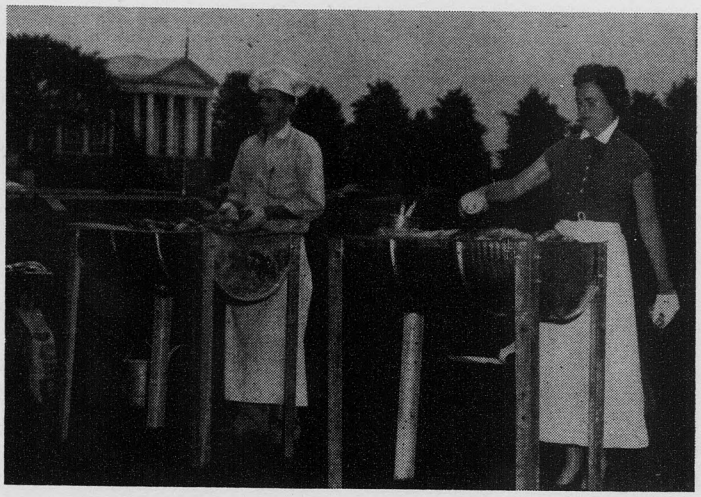

BARBECUED CHICKEN — IT'S DELICIOUS

GEORGE B. SWEET, University of Maryland

Cook it slowly, in its own juices! That's the secret of preparing golden, tender barbecued chicken that brings 'em back for more.

Begin with a 2½ lb. oven-ready bird cut down the middle, through the backbone and breast. Remove the neck. Each half weighs between 1 and 1¼ lbs.

By using a small barbecue pit, halves can be comfortably cooked with room left on the grid for the sauce pan in which there is a new dish mop, used to smother the chicken with your favorite sauce.

Since the secret of tender chicken is slow cooking, only about ¾ lb. of charcoal is used per pound of chicken barbecued. This prevents the heat from becoming so intense that the meat dries out.

As soon as the skin shows any sign of blistering, turn it over, using clean, white, work gloves. Each time you turn it, apply barbecue sauce, remembering to always keep the chicken moist. Generously pour salt right from the salt box over the chicken every 15 minutes.

The greatest problem in barbecueing chicken is that too often the meat is well done on the outside and raw inside. This won't happen when the chicken is cooked slowly. Allow between 1½ and 2 hours cooking time, with the grid between 12 and 18 inches away from the charcoal. The original charcoal you put in will last the entire cooking time.

Here is a simple sauce recipe that gives excellent results. For every 20 halves of chicken, combine ½ lb. melted butter or oleo, 1 pint cider vinegar, and 1 tablespoon ground black pepper. Mix thoroughly.

When are the birds ready to eat? To be absolutely sure, pull the wing back and look at the meat way down deep in the wing and breast joint. If all redness is gone, the meat is surely done.

If the outside skin doesn't look as golden-brown as you'd like, add a little more charcoal to increase the heat under the chicken for a few minutes.

It's a mighty delicious meal — a wonderful way to entertain and lots of fun to cook.

50 gal. steel drums cut in half and angle iron legs bolted to the corner make an excellent portable barbecue pit for 20 chicken halves. The above scene is a demonstration by the author at the Rural Women's Shore Course at University of Maryland in June, 1953.

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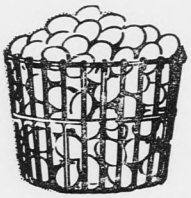

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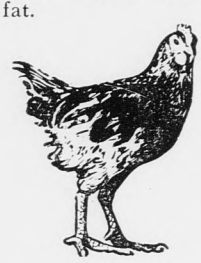

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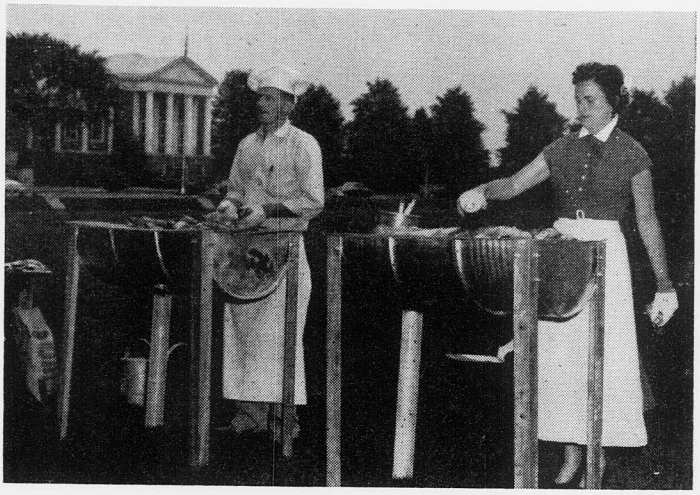

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6th Annual Delmarva Chicken Festival

During the six years in which Festivals have been held on the Delmarva Peninsula there has been a steady improvement shown by the officers and directors in charge. It would be unfair to the great Delmarva Broiler Industry if we did not continue to strive for steady improvement.

As many of you know, some of the highlights of past Festivals have included the World's Largest Frying Pan, an outstanding Parade, a fine Beauty Contest, a National Chicken Cooking Contest as well as several other unusual events. The 1954 Festival plans to add several other features including a Mammoth Broiler Barbecue where delicious Delmarva Broilers will be available in large quantity for all who attend.

The 1954 Delmarva Chicken Festival will be held at Georgetown, Delaware, in early June, the exact dates will be announced as soon as possible. We invite everyone to the Festival. We believe it will be worth your while to attend this outstanding affair.

If you have any suggestions to offer for the good of the Festival, we hope you will feel free to make them to any officer or director of the Festival. We greatly appreciate your support in the past and look forward to seeing you at Georgetown, Delaware, next June.

Sincerely,

Delmarva Chicken Festival,

E. A. (Jim) Yutzi,
President

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6th Annual Delmarva Chicken Festival

The National Chicken Cooking Contest is an important feature of the Festival and attracts contestants from practically all States. Even the men cooks get in to compete for their bit of the glamour.

Bailey Goss, well known T.V. and Radio personality of Baltimore, and Otis G. Esham, President of the 1953 Delmarva Chicken Festival, samples Delmarvalous Fried Chicken from the World's Largest Frying Pan at Harrington, Delaware, on June 23.

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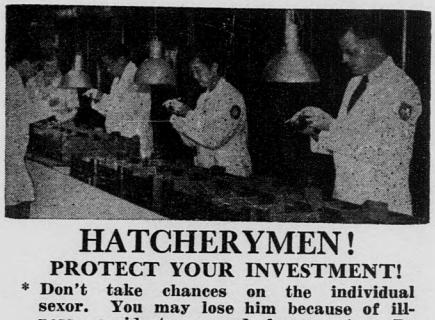

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POULTRY MANURE — HOW TO USE IT ON FIELD CROPS

DR. FRANK L. BENTZ, JR., University of Maryland

Excellent response of crops to applications of poultry manure proves it to be a fertilizer of high value, although it alone is not always adequate.

The large quantities available especially on the Eastern Shore of Maryland, can provide many farmers with a low cost fertilizer for increasing crop production.

AVERAGE COMPOSITION OF MANURE

Kind of Manure	Moisture	Pounds in one ton of manure		
		Nitrogen	Phosphoric Acid	Potash
Poultry manure	55	20	16	8
Stable manure	86	10	5	10

Of course, the type of litter will influence the composition of the manure and consequently its immediate usefulness to some extent.

LOSS OF NITROGEN

The longer poultry manure is permitted to stand the greater will be the loss of nitrogen even though the manure is protected from rain.

NITROGEN LOSSES FROM POULTRY MANURE PROTECTED FROM RAIN

Time of Standing Days	Tempera-ture of	Loss of Nitrogen — Percent	
		Untreated	200 lbs. superphosphate per ton
20	69-95°	36.9	2.3
20	34-50°	16.8	4.6
60	70-80°	67.2	6.0
60	Mar.-Apr.*	33.1	15.8
40	Oct.-Nov*	23.0	Not determined
10	May*	19.4	Not determined

*Kept in unheated barn.

Frequently 100 - 200 lbs. of superphosphate is added per ton of manure to decrease loss of nitrogen. However, experimental work at the Delaware Experiment Station indicates that untreated poultry manure is just as effective in increasing crop yields of vegetable crops as poultry manure reinforced with superphosphate. On similar soils in Maryland, especially those that have received heavy applications of high phosphate fertilizers for vegetable crops, it is doubtful if adding superphosphate will increase crop yields. Where heavy phosphate fertilization (1000-2000 lbs. per acre per year of a complete fertilizer) has not been carried on, it may be very beneficial to add phosphate to the manure.

(Continued on Page 15)

The Inside Story on...

TWO GREAT STRAINS!

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These rugged Granite White Rocks are the newest addition to the Christie team of all-purpose champions. More than 10 years ago we began to build the Christie Granite White Rock strain. Today, we're proud to list it beside our world-famous New Hampshires. Add up your own figures on egg production, hatchability, uniformity of growth, complete feathering, early maturity, large egg size, resistance to disease and low laying year mortality. You'll find it hard to believe you're growing a high production bird with such superior meat qualities.

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POULTRY MANURE — HOW TO USE IT ON FIELD CROPS

Hydrated lime is sometimes scattered over the litter at the rate of 25 lbs. per 100 sq. ft. with a view toward conserving nitrogen and keeping the litter in a relatively dry condition. Where the built-up litter system is used, applications of 10-12 lbs. of hydrated lime per 100 sq. ft. may be scattered at intervals. Work at the Vermont Agricultural Experiment Station has shown that this practice decreases nitrogen losses for 5-7 days in warm weather (longer in cold weather), but after that period the lime has no effect in conserving nitrogen. Ground limestone has no appreciable effect in conserving nitrogen because it is too insoluble. For conservation of nitrogen, therefore, hydrated or burned lime should be applied to the litter. If the soil has been heavily limed, be careful not to overlime by applying lime with the manure.

Regardless of whether superphosphate or lime is added or not, there is some loss of nitrogen. Therefore, the manure should be spread and thoroughly worked into the soil as soon as possible so that the soil can absorb the ammonia given off and so that plants can make use ofthe soluble nitrogen.

In many instances it will not be practicable nor even possible to spread the manure immediately. In such cases keep the manure in narrow, deep piles and protect it from the rain to decrease nutrient losses. Covering the surface of such piles with soil will further help conserve nitrogen.

USE ON FIELD CROPS

Corn. Growing corn requires large amounts of nitrogen. Since poultry manure contains considerable nitrogen that becomes available to the plant throughout the growing season, you can expect excellent results from its use. Broadcast 5 - 10 tons per acre on cover crops during the winter. Probably slightly better results will be obtained by broadcasting the manure just before or immediately after spring plowing. If broadcast after plowing, it must be thoroughly mixed with the soil by disking. Rye grass or other all-grass sod that is turned under, requires large quantities of nitrogen for decomposition. Poultry manure provides this nitrogen and produces striking increases in crop yields. Some growers have even used poultry manure as a side dressing application when the corn is knee high, but the labor involved makes this practice of doubtful economic value.

Small grains. For small grain production manure may be broadcast and plowed under or disked in before seeding time. It may also be used as a winter top dressing to hold the snow and to prevent rapid changes in soil temperature, thus decreasing winter injury. Top dressing in February or March would probably mean better use of nitrogen by the grain and somewhat larger increases in yield. To prevent lodging of grain, do not apply more than 3 tons per acre when top dressing. On soils of high fertility and high organic matter content even very small applications of poultry manure may cause lodging.

Pastures. Light top dressings in winter and early spring with poultry manure will provide more early pasture, especially on pastures that contain a high percentage of grasses. Where legumes are used in the pasture mixture, applications should be very light. Heavy applications may stimulate the grasses to such an extent that legumes will be crowded out.

Weed Problem. It is often thought that use of poultry manure increases the spread of weeds. Delaware experiments did not bear this out. However, if poultry ranges contain weeds and if large amounts of weeds are prseent in poultry feeds, the weed problm may become very serious.

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REQUIREMENTS OF A GOOD LITTER FOR POULTRY

GEO. D. QUIGLEY, Poultry Department

Litter has long been used by poultrymen, but it has been only during the past few years that litter has received a portion of the study and emphasis it deserves. The litter represents possibly the most important contact of the fowl with its environment, and along with ventilation, is an important factor determining bird capacity of broiler or laying houses.

Why do we use litter? Litter is used primarily as an insulating and absorbing substance, and there is also the overall stipulation that it must be cheap in first cost. Because of the requirement of low first cost, and due also to its bulk, litter is almost always a comparatively local product with its distribution limited to the distance it can be transported economically. Let us discuss these points in some detail.

Litter has to be a good insulator because it has to provide a relatively warm footing for the bird during the colder portion of the year, when earth temperatures are low. This insulating value also prevents excessive condensation upon the floor from the warm, moisture laden air of the pen during these same months, which incidentally is one of the major contributions of the built-up litter system. A litter of low insulating value gives inferior results for both layers and for brooding purposes.

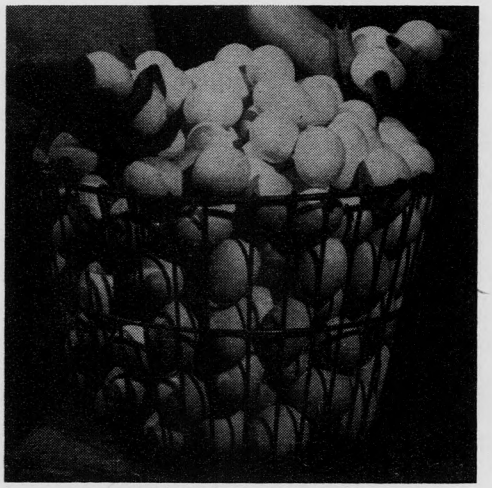
The absorptive quality of a litter is important since the litter must take up the moisture from droppings quickly. Good litter, however, must also permit the ready evaporation of this moisture by the atmosphere in the pen in order to keep the litter in good physical condition. This point is mentioned only because occasionally a litter is offered for sale which is highly absorbent, but it is a one way action and the material will not readily give up the moisture absorbed thus making an unsatisfactory litter.

A satisfactory litter has good mechanical properties, and should not be sufficiently coarse as to prevent movement by the birds to aid in the drying process. This applies primarily to the surface of the litter, and good natural mechanical characteristics reduce the necessity of mechanical stirring by the operator. A litter when moist should not have a tendency to mat or cake badly, which is an undesirable characteristic of uncut straw and low quality hay, for example.

Some litters are not entirely safe from the standpoint of ingestion by the chicken, and a litter which is eaten in large quantities may cause trouble. A good example is sand for litter for baby chicks in which case the sand may be so attractive as to be eaten in place of feed, leading to the death of chicks in many instances. The same has been true of fine sawdust. The remedy is to cover the litter for several days with sacks, newspaper and the like until the chicks learn the source and appearance of feed. Notwithstanding this precaution suggested, a coarser litter which does not lead readily to ingestion is preferable. In connection with safety, one should think also of the character of the dust produced by the litter when the chickens scratch and move about upon it. Some industrial products and by-products which have been considered

(Continued on Page 19)

SOMETIMES *it does pay*



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for poultry litter have ranked very low in this respect.

Straw or leaves or similar materials must be dry, clean, and apparently free from mold, as one species of mold may cause Aspergillosis in chickens, and can result in a high rate of mortality in chick or broiler houses. In the case of moldy material you cannot determine readily what species is involved so it is always wise to reject moldy litter of any kind.

In conclusion, it must be considered that the final use of practically all used litter materials is for application to the land, and the litter material when thus mixed with droppings, should disintegrate rapidly, with no serious disturbances to the chemistry and fertility to the soil, and contribute measurably to the organic matter and fertility of the soil.

The above specifications are usually met satisfactorily in Maryland by planer shavings, peat moss, cut straw, crushed corn cobs, sugar cane waste, and peanut hulls. Research is needed upon the important possibility of securing better litter performance by combining litter materials having different physical properties, instead of using one material only as is the custom at present. This possibility is illustrated by the fact that if ½" to 1" of coarse crushed but not dusty limestone is placed upon a wooden or cement floor such will largely prevent the sticking of litter to the floor with subsequent ease of cleaning in addition to the usual conditioning value of lime upon the litter itself.

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DONALD A. WILBUR, Salisbury, Md.

The volume and quality of broilers produced is based upon the volume and qualities of hatching eggs available. Recently there has been a decided trend to increase the hatching egg flocks on the Peninsula and there is evidence that this will continue in the future.

Our laying flocks are housed in two long, shed type buildings, each having a capacity of 1000 layers. The feed rooms are conveniently located on the end nearest our residence. Carriers run the full length of the house so that I can easily feed the birds and collect the eggs on the return trip. To hold egg production high in the summer, the houses are painted white with a white built-up roofing and watering space is doubled when warm weather arrives. For at least seven months of the year all windows are removed from the south side. In order to have adequate summer ventilation I have two decks of ventilator doors across the entire back of the laying houses. Good production can be maintained even during the heat of our Delmarva summers with proper attention to comfort of the birds.

We use a two flock system. One flock is started in February and the second flock is started late in May. There are several advantages to this system:

1. It gives a steady production with a steady income as two flocks are usually producing while the replacement flock is growing.
2. All brooding equipment and range shelters are used twice in the same year.
3. The work load of caring for the chickens is more evenly distributed and arranged to miss the peaks of other farm work.
4. The hatchery needs summer eggs and a consistent supply so the system also fits their needs best.

The early chicks are moved to the range during the first week of May and grown there until late in July. During the growing period it is necessary to vaccinate for Newcastle Disease and Chicken Pox. At approximately 5½ months, they are housed, wormed, and blood tested for Pullorum. When they are handled they are selected for breeding and laying qualities. The cockerels are carefully selected with eight allowed to remain with each 100 hens. At six months of age their production is climbing and egg size is satisfactory. Usually the fall egg price is favorable so that I look forward to the total income balancing and total expenses when the birds are ten months old. This is a goal and can be affected by many variables such as disease, weather, egg production, and egg price. This February hatched flock is held on the farm until July the following year.

The late chicks are started the last week of May, moved to range in August and housed in November. This flock comes into production later but does not show the tendency to winter pause or molt that the early flocks show. The last two years it has reached a higher peak, with a steadier production than

(Continued on Page 23)

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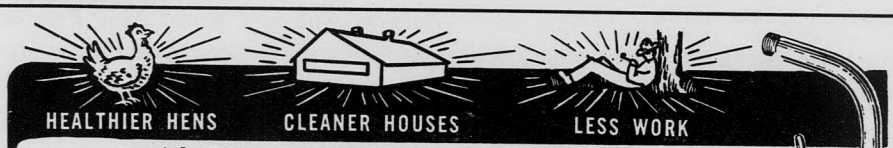

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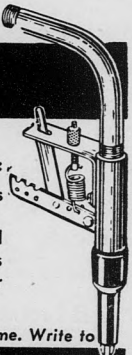

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the earlier spring flock. By gradually increasing the lights and using special feed consumption inducements, the flock this year produced satisfactory throughout the hot summer months.

Our feeding schedule starts at 8:00 A.M. with the day's feeding of mash and a few oats thrown in the litter. Again at noon oats are scattered to keep the hens active and to cause them to leave the nests while the eggs are gathered. In the late afternoon the regular scratch feeding of half oats and half corn is made. This year, as an added attraction, I am spreading breeder pellets over the mash after this feeding. At the start of the laying season mash and scratch are balanced, 50% each, but as the laying year advances this is gradually changed to 2/3 mash and 1/3 scratch. All corn fed is grown on the farm, giving an appreciable saving in feed costs. On our oldest flock, I have increased the lights to 1:30 A.M. while in the youngest flock they are adjusted to give a thirteen hour day.

To facilitate the three daily egg collections, we use a semi-community type nest. These are double-decked, 12"x24" in size, and arranged at the ends of the 72 foot rooms with a single row under the windows convenient to the carrier. Compared to the community type nest, which we also have, these are easier and faster to use.

We have found that the large, covered nest does not give adequate ventilation during the summer. These eggs are held in an egg room below our house and are graded and cased the following day.

The production of market eggs compared with the production of hatching eggs from meat strain birds is often discussed among the poultrymen of this area. There are several factors to be considered. Foremost is egg production. We all agree that meat strain layers do not produce as many eggs as a bird bred entirely for laying. The cost of growing a pullet to laying age and the feed cost to produce a dozen eggs is higher in the heavy breeds than in the lighter breeds. The chicken used for breeding needs more space per bird. Also the added cost of housing and growing the males needed must be considered. Blood testing for pullorum further increases the costs and causes some mortality and loss in production.

Considering all these factors, it is likely that it will be profitable to produce hatching eggs if, at present feed prices, you can average at least 30c over the market egg price with a higher premium for summer eggs and an incentive payment for high hatchability. A market report for hatching eggs would be helpful as is reported for market eggs and broilers.

When the Delmarva hatching egg producer is offered the incentive of adequate premiums for his eggs and a year-round market, he will no longer feel he is the forgotten man in the broiler industry. Given these incentives, the production of hatching eggs in Maryland will continue to increase.

Egg albumin quality is inherited, but when Newcastle disease hits the laying flock, watery whites and poor shells are sure to result.

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HOW WE WASH MARKET EGGS

JOHN P. MARTINUK, Elkton, Maryland

Consumers have a right to expect their food and packages in which it comes to be clean. We have found that when done properly, washing eggs is more efficient than dry cleaning.

The best policy to follow is to produce as few dirty eggs as possible. On some poultry farms, cleaning, grading, and packing eggs takes as much time as all chicken chores combined. Provide plenty of deep nests with an ample supply of dry nesting material. Keep the hens' feet clean by having dry floor litter. You can have dry litter most of the time if the pen is well ventilated and the litter is deep and not too coarse. It will help to keep the hens' feet clean if the pit or the dropping boards are screened, and the water fountains are well away from the nests.

First we must have a quality egg, and an egg when washed and dried should have a fresh egg appearance. Some eggs when washed do not have the so called egg bloom, but are mottled and appear to have large dark pores, making them unattractive. By eliminating the mottled eggs set for hatching, the appearance of eggs laid by the birds can be greatly improved. One factor we found in washing eggs is that when egg shells are thin there are numerous checks, this also can be eliminated by the breeder by breeding for sound shells.

On commercial poultry farms, where help is employed, there is a tendency for the hired help to allow the eggs to roll and click together. When these eggs are washed they often show up as checks. Therefore, it is important to the producer to stress the careful handling of eggs.

We know today that bacteria washed into the shell causes eggs to spoil and that we can kill the bacteria by changing the water often and using a detergent with a sanitizing agent.

Our eggs are gathered several times a day and brought into the egg room where they are sorted immediately, the dirtiest in one basket, the clean in another. The clean eggs are immediately placed in the cooling compartment where a fan cools the eggs. The dirty egg baskets are inserted into the egg washing machine and dipped and set off to one side for a few moments so as to enable the detergent to soften up foreign matter on the eggs. Then the egg basket is inserted again into the machine and left there from three to four minutes. Using a minute timer is advisable to prevent the eggs from staying longer than the proper time. The water temperature is held 115 degrees. To have it higher tends to cause shell cracking.

We use several air bubble action type egg washers which we have found to be most satisfactory to us. These have 220 volt heating elements which enable us to change the water often. Our water is changed after five to six baskets are washed. A 110 volt heating element machine takes too long to heat the water to permit frequent water changing and continuous washing. Also a 110 volt unit cools off too rapidly to keep the proper water temperature.

We have tried two methods in attaining clean washed eggs. First we tried to cool the eggs immediately, then sort

(Continued on Page 27)

ANTHONY'S WHITE LEGHORNS

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- **AT HUNTERDON, N. J., TEST**—Anthony's White Leghorns placed Third High among all breeds (50 pens), with 3511 eggs and 3728.70 points. Three Anthony White Leghorn hens placed among the top 10 birds of all breeds. Their records were 329 eggs and 342.55 points; 319 eggs and 341.80 points; and 313 eggs and 335.65 points in 350 days.
- **AT PENNSYLVANIA TEST**—Anthony's White Leghorns also placed Third High among all breeds (75 pens), with 3312 eggs and 3547.15 points. No individual bird records available here.
- **AT VINELAND, N. J., FLOCK MATING TEST**—Anthony's White Leghorns placed Third High (9 pens) in the New Jersey Flock Mating Test for Hens with a net return over feed cost of $69.86.
- **AT NEW YORK RANDOM SAMPLE TEST**—Anthony's White Leghorns had a net income over feed costs of $3.372 per chick started. Interior egg quality was very high. Mortality from leucosis was extremely low.

The continued year-in, year-out high quality performance at egg laying tests under impartial, official supervision, where competition is always of the highest calibre, is good evidence of the outstanding merits of Anthony's White Leghorns.

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HOW WE WASH MARKET EGGS

out and wash the dirties. The eggs did not come out clean, and the percentage of check eggs was greater. By sorting the eggs immediately after gathering and washing the dirty eggs immediately and placing them in the compartment to cool, the eggs came out clean with less checks. This method has not impaired our egg quality.

The washed eggs upon being properly cooled are taken to the egg grader and graded according to size. There is an attachment on the egg grader where the eggs can be candled for blood spots at the same time, which helps eliminate under grade eggs.

The eggs are packed into pre-cooled egg cases and sent to a cool room which has a cooling unit keeping the temperature between 55 and 59 degrees.

The eggs should be sent to the distribution point as soon as possible. Ours are shipped twice a week.

By using the proper detergent sanitizer and clean water with the right temperature egg quality can be maintained. In other words, if eggs cannot be washed properly do not wash eggs at all because through careless washing an individual producer does not only injure his reputation but that of others as well.

A lady in Iowa advises putting a little vinegar in the drinking water if the hens eat their eggs.

G. Linden Duffey C. Percival Merrick, Jr.

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ALL-MASH vs. MASH AND GRAIN FOR LAYERS

G. F. COMBS, Poultry Dept., University of Maryland

There has been an increase in the use of all-mash rations for layers during the past year. This has caused many poultrymen to ask, "Is the all-mash feeding method better than the mash and grain system"? "What are its advantages"? "What are its disadvantages"? To start with, it should be clearly understood that the method of feeding is of importance only as it may influence the amount of the various nutrients that the hen receives. Both the all-mash method and the mash and grain method may be used satisfactorily provided that suitable mash mixtures are used and, in case of the mash and grain method, proper proportions of mash and grain are fed.

The all-mash feeding method has two main advantages. Its use can reduce the labor required in feeding, particularly where automatic feeders or bulk feeding methods are employed. At the same time, less skill is required in feeding since only one feed mixture is involved. When the mash and grain system is followed, some judgment is required in regulating the proportion of grain and mash during various seasons of the year and at different levels of egg production.

The all-mash system also has its disadvantages. The litter condition is less satisfactory than with a system in which grain is fed in the litter, since the hens do not scratch the litter and keep it stirred. The all-mash system also is usually more expensive as some cost is required for grinding, mixing and transporting the additional grain added in the mash. This is particularly true if home-grown grains can be obtained locally.

Mashes to be used as all-mashes for layers must be formulated to meet all of the requirements of the hen. Such mashes, while slightly lower in their protein, mineral and vitamin content, must contain a higher level of energy than a mash designed to be fed with a grain mixture. This means that relatively high levels of corn or wheat must be included in all-mash rations.

The results obtained recently with all-mash rations for layers have been very good. Better feed efficiency has been obtained in most cases, and some reports indicate that egg production during the winter has been improved. Nevertheless, the additional cost ordinarily involved with all-mash rations would tend to restrict its use primarily to large flocks where considerable savings in labor may result, or where the feeder lacks the skill and know-how to properly regulate the proportion of grain and mash when the all-mash system is not used. A good feeder need not convert to an all-mash method unless his savings in labor will compensate for the increased cost of the all-mash method. All-mash formulas for layers and breeders are shown in the table.

(Continued on Page 31)

Hybrid layers show promise for the future, especially if they can give us lower mortality as well as more eggs per bird. However, hybrid corn is one thing, and hybrid chickens quite another thing. At the present, purebred chickens appear in no danger of being discarded for hybrids.

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ALL-MASH vs. MASH AND GRAIN FOR LAYERS

All-Mash Rations for Laying and Breeder Chickens

Ingredients	All-mash Layer Lbs.	All-mash Breeder Lbs.
Ground Yellow corn	1111.7	1101.45
Pulverized oats, or barley	150	150
Wheat middlings (or wheat)	200	200
Fish meal, 60%	25	50
Meat Scrap, 55%	50	25
Soybean meal, 44% solvent	275	250
Dehydrated alfalfa meal	50	50
Fermentation solubles (250 mgs. riboflavin per gm. or equivalent)	10	20
Dried whey product	—	25
Steamed bone meal (or equivalent)	50	50
Ground limestone or oyster shell	65[1]	65[1]
Salt, iodized	10	10
Manganese sulfate (65% feeding grade)	0.3	0.3
Vitamin A feeding oil (4000 IU/gm.)	2	2
"D"-activated animal sterols (1500 ICU per gm.)	1	1.25
	Gms.	Gms.
Nicotinic acid supplement to supply	10	10
		Mgs.
Vitamin B_{12} supplement to supply		2
	2000 lbs.	2,000 lbs.
Calculated Analysis		
Total protein, %	16.5	16.3
Crude fiber, %	4.1	4.1
Vitamin A, IU/lb.	4400	4400
Vitamin D, ICU/lb.	340	425
Riboflavin, mgs. /lb.	1.4	2.1
Pantothenic acid, mgs./lb.	4.4	5.0
Nicotinic acid, mgs./lb.	19.2	19.3
Choline, mgs./lb.	445	450
Vitamin B_{12}, mgs./lb.	1.0	2.5
Calcium, %	2.28	2.25
Phosphorus		
Total, %	.78	.79
Available, %	.55	.55
Manganese, mgs./lb.	22	23
Productive energy, Cal./lb.	880	870

[1]The entire amount of calcium carrier need not be added in the mash provided that oyster shell or other calcium grit is fed free choice.

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MARYLAND

NEPPCO PROGRAM FOR EGG DETERGENT-SANITIZERS

DR. ALFRED VAN WAGENEN

Eggs are a perishable commodity. During the past few years, losses in keeping quality of market and storage eggs due to improper cleaning practices have increased sharply. This is due to an increased tendency to wash all eggs—and to lack of care in methods and use of materials.

NEPPCO has made detailed studies of present conditions. These studies have demonstrated that many egg spoilage losses can be avoided by (1) washing only dirty eggs, (2) washing properly and (3) washing with a detergent sanitizer compound.

For years it has been known that eggs will spoil more readily when they have been wet. For years, marketing men and teachers have preached the importance of producing eggs clean and using dry cleaning methods on the inevitable dirty eggs. In recent years, there has been economic pressure from greatly increased number of eggs produced per man, to reduce the labor needed to clean eggs. Cleaning by washing is one answer. Poultrymen have been sold machines to wash eggs, or taught to wash by hand, and many did so successfully with no harm to the product.

Others did not follow the principles of sound sanitation necessary in cleaning eggs, and experienced dire results. "Exploders" appeared in the incubators, market men were plagued with spoiled eggs and angry customers, storage men had severe losses—all tending to reduce confidence in eggs, and causing a very real, though not readily apparent, reduction in demand, especially for nearby eggs, where washing has been most prevalent.

Much is still to be learned about cleaning eggs by washing. The process is still controversial, among experiment station men and researchers, as well as market men. The poultrymen should look upon washing eggs as a *privilege* which entitles him to a better appearing product, and considerable labor saving, but only at the expense of *careful* work and *sanitary control.* If he disregards the rules, he will lose the advantages.

The principles involved, as we know them today, are these:

1. The egg is perishable, an excellent food for growth of bacteria.
2. The bacteria which causes spoilage are present everywhere, especially in the soil, grow rapidly when given food, moisture and warmth, and move by swimming in water.
3. The egg shell is porous, and bacteria can move through it when moisture is present. This movement is helped by the suction created by cooling the eggs in cool water. The movement is hindered by the pressure created by warming eggs in warm water. Always have any solution used with eggs *warmer* than the eggs. Recommended temperatures, 110° to 120° F. for immersion.
4. There is no known practical method of killing the bacteria, once they are inside the egg. There-

(Continued on Page 35)

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NEPPCO PROGRAM FOR EGG DETERGENT-SANITIZERS

fore, the objective is to *prevent* the bacteria from entering the eggs. This can be done by producing eggs as clean as possible, keeping them clean, and exposing them to as little danger of infection as possible. Keep everything that comes in contact with eggs clean and sanitized, including the room in which eggs are kept. Clean and sanitize the eggs as promptly as possible after cooling.

5. Since washing supplies the necessary water for the bacteria to swim, and since this water obviously becomes infected, the wash solution should contain an approved sanitizer to kill the bacteria that are washed off into it, and to prevent the transfer of the bacteria from one egg to another.

6. Sanitizers that are available today, and which are considered safe to use with human food products are "used up" as they do their job and eventually become ineffective. The solution must be renewed frequently enough to maintain the killing power of the solution.

7. The eggs should be dried promptly and packed only when thoroughly dry, in clean, preferably new, material.

8. In no case should eggs be immersed longer than is necessary to clean them, and in any event, not more than three minutes. Two minutes is better. Follow the instructions for the method you use.

Summarizing — Use temperature of between 110° and 120° F. Immerse no longer than 2 minutes. Use a *detergent-sanitizer designed for egg cleaning* and change it frequently.

The list of detergent sanitizer compounds that NEPPCO has tested and which *when used according to directions* — will provide satisfactory sanitizing efficiency, is available for the asking. Any producer who desires this free list may obtain a copy by writing to The Northeastern Poultry Producers Council, (NEPPCO), 11 West State Street, Trenton 8, N. J.

Washing is no substitute for cleanliness in production or handling. It can do you and your industry great harm if not done right. IF YOU CAN'T OR WON'T WASH EGGS RIGHT, DON'T DO IT!

Eggs are 65% water. Water troughs down where birds can easily reach them favors water consumption. This means birds should stand on the floor for heavy breeds and perches 18 to 20 inches above floor for Leghorns.

Horace Dryden, Modesto, California, says wire egg baskets cause more cracked eggs than do pails, and in moderate air movement the eggs cool little if any faster in baskets than in pails.

Superphosphate added to litter fixes the ammonia and does a better job of keeping litter in good condition than does lime.

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BODY SIZE AND EGG PRODUCTION EFFICIENCY

MORLEY A. JULL, University of Maryland

The final reports of the Third New York and the first three-year averages of the California Random Sample Egg Laying Tests contain much information of interest to all poultrymen interested in efficiency of egg production. Net income in commercial egg production is determined by subtracting the costs of the chicks and feed from the returns secured from eggs and meat. For the most part, there is not much difference in the price of chicks of different breeds. Except in cases of excessive mortality, the rate of egg production is the most important factor that determines efficiency of feed conversion into eggs. However, it is well known that large-sized layers use relatively more of their feed for maintenance than small-sized layers but that the former have greater meat value than the latter at the end of the laying year. Data bearing on these factors of economic importance are presented herewith.

In the Third New York Test, out of 33 entries in all, the number per breed or variety was as follows: W. Leghorn, 16; Rhode Island Red, 6; New Hampshire, 5; Barred Plymouth Rock, 3; White Plymouth Rock 3. Average egg production per pullet housed was 191.3 for the White Leghorns and 184.2 for the others. Average income over feed and chick costs per pullet housed was $3.20 for the White Leghorns and 3.13 for the others.

The following results of the first three California tests show that as far as the three breeds with the largest number of birds entered are concerned, average egg production and meat income per bird were the deciding factors in determining net income per bird. Average egg production and net income were based on the number of pullets in the entry at one week of age. Chick costs are not considered.

	Ave. egg production	Ave. egg and meat income	Ave. feed cost	Ave. net income
Rhode Island Reds	207	$10.05	$5.43	$4.62
White Leghorns	204	9.31	4.78	4.53
New Hampshires	151	7.67	5.40	2.27

Chick cost is only 3½% of the cost of raising a layer through its first year of lay. If chicks were free it wouldn't affect costs much. Why buy cheap chicks when well bred birds more than pay the difference in cost?

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Broiler Section

BROILER RATIONS HAVE CHANGED

G. F. COMBS, Poultry Dept., University of Maryland

Yes, broiler rations have changed and the results have changed too. These changes are obvious in the results shown in the table.

What are the most important contributing factors which have made the improvement in our present day rations possible? Some of these are:

1) renewed interest in in the energy content of broiler feeds, 2) discovery of the value of added niacin in rations containing high levels of corn, 3) the isolation of vitamin B12 and the the prompt availability of this vitamin for use in feeds, 4) the discovery that antibiotics would improve the growth rate of chickens, 5) improved processing methods used in production of soybean oil meal of higher quality, 6) the increased availability of several other vitamins (riboflavin, calcium pantothenate, choline chloride, nicotinic acid, vitamin E, stabilized vitamin A, etc.) for use in feeds, 7) the availability of the amino acid, methionine (feed grade), in commercial quantities, 8) the recognition of sources of two different unknown growth factors, which may be critical in certain practical rations, and 9) the recent studies with arsonic acid compounds, indicating their value in broiler feeds.

It should be obvious that the marked improvement in results is not due to a single change in formulation of feeds, but rather to continuous application of advances in research as they have developed. At the present time, a 3-lb. broiler can be produced on slightly more than 8 lbs. of feed in approximately 9 weeks under desirable conditions and management. Obviously, a good feed is required if such results are to be obtained.

It should be stressed, however, that the improvement in results which have occurred during the past few years cannot be attributed entirely to advances in the formulation of feeds, since improved breeds and strains, improved management practices and better disease prevention and control measures also have been developed. These factors, as well as the broiler ration used, are all very important to our present-day results. If improvement in management, breeding and disease control keep pace with the advances in broiler feeding, we can expect continued improvement in our already efficient feeds.

(Continued on Page 41)

The lines between advocates of built up (call it old if you wish) litter and those who condemn it for brooding chicks grow steadily sharper. One interesting thing about the lineups lies in a comparison of the economic husbandry qualifications of the two groups, even if we don't settle the litter issue.

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BROILER RATIONS HAVE CHANGED

Ingredients	1946 Ration (U. of Md. Bul. 109)	1953 Ration (U. of Md. Substation) Trial No. 7
	Lbs.	Lbs.
Gr. yellow corn	580	1217
Gr. heavy oats	300	—
Wheat middlings	200	—
Wheat bran	250	—
Meat scraps, 55%	100	—
Fish meal, 60%	100	75
Soybean oil meal, 44%	200	530
Corn gluten meal	50	—
Fermentation solubles (80 mcg riboflavin/gm)	25	—
Dried whey product	50	50
Dhy alfalfa meal	100	50
Ground limestone	25	20
Bonemeal, steamed	10	45
Iodized salt	10	6
Manganese sulfate, 65%	0.25	0.5
Vitamin A & D oil (2250 I.U. of A and 300 I.C.U. of D/gm.)	4	—
Dry Vit. A & D supp. (4000 IU of A & 750 ICU of D/gm.	—	2.0
Nitrophenide, 25% mix	—	1.5
DL-methionine	—	1.0
Vitamin B_{12} and antibiotic feed supp. (3 mg B_{12} and 2 gms procaine penicillin G/lb.)	—	1.0
Choline chloride, 25% mix	—	1.0
	gms.	gms.
Riboflavin	—	4
Niacin	—	25
Calcium pantothenate	—	6
3-nitro-4-hydroxyphenylarsonic acid	—	45
	2004.25 lbs.	2000.00 lbs.

AND RESULTS HAVE CHANGED TOO!

	1946 Ration (Estimated)	1953 Ration (Substation Trial No. 7)
Time required to produce a 3 lb. broiler	12½ wks.	9½ wks.
Amount of feed required to produce a 3 lb. broiler	12 lbs.	8.1 lbs.
Feed required lbs. weight	4.0 lbs.	2.71 lbs.
Avt. wt. at 10 wks.	2.40	3.36

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BROILERS — A PROFITABLE CROP IN SOUTHERN MARYLAND

ANDREW J. BOGGS, Mechanicsville, Maryland

Most farmers hate to admit that they have a poor farm, but if you have one you might as well face the facts. Growing tobacco, wheat, and corn will not make poor land rich unless you put back more than corn stalks, wheat straw, and tobacco stalks.

When we bought "Cherry Lane Farm" four years ago the more we plowed the more poor spots we found. By the time we finished plowing we had decided to look for a new crop that would add some fertilizer to our poor land.

Most farmers in Southern Maryland depend on tobacco for their cash income and regard chickens as just a sideline to supply "Pin Money" for the women folks. But in 1951 when tobacco acreage allotments were voted in for Southern Maryland we found our little farm hit pretty hard and had to look for other crops to take place of low acreage allotments on tobacco.

Since Southern Maryland is famous for its fried chicken, why not produce some right where it can be eaten fresh. We started patching up old buildings with scrap lumber, card board boxes from local stores, and began growing from three to five hundred broilers.

Our new crops are more broilers, more grass and corn. We find a sharp pencil, some scrap paper or side of chicken house wall are the cheapest, yet some of the most valuable "Tools" a broiler producer can own. Too many broilers are being sold automatically when they reach a certain weight or certain age. A little figuring on the part of the producer will show that neither of these methods should be followed. Instead, the time to market should be determined for each batch of broilers since the amount of the investment and the amount of the return constantly change.

Success in broiler production depends on efficient results. This calls for good chicks, a sound feeding program, and good management. Probably more depends on management today, with the average broiler producer, since the feed manufacturer and the hatcheryman are both doing a good job in their respective fields.

There are several areas in the country where broilers have provided a much needed source of farm income. Broiler production works well with tobacco and there is no reason why it should not make possible a better way of life for people of Southern Maryland.

In view of these facts, we can be reasonably safe in saying that the poultry business will succeed in Southern Maryland because of its people — both farmers and businessmen. The people want and need a steadier income. They are ambitious to improve their living conditions and themselves.

They want to send their children to the best schools, churches, and colleges, and take their place in the world on an equal basis with other people. The production of broilers can make this possible.

(Continued on Page 45)

FOR 3rd CONSECUTIVE YEAR AT NEPPCO

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1951
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1953

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Extremely early feathering and more rapid growth are characteristic of Martin's Nichols Chicks. Here's where Martin's use of 100% first generation Nichols breeding stock pays off . . . for you.

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BROILERS — A PROFITABLE CROP IN SOUTHERN MARYLAND

Every member in our family has a part in growing poultry. They all work and are proud of the fact they know how to raise broilers. They enjoy their work because they like to see chickens eat and grow and see the results of their labor. If we have fresh eggs for breakfast, plenty of fried chicken, the eighteen months we wait for a tobacco payday does not seem so long coming.

These things all sound good, but we have many problems that are hard to cope with. There is the risk of a price drop when sale of a brood hardly pays the feed bill. All we have left is manure for our tobacco beds. There is danger of disease that is increasing year by year, but with the aid of medicated feed, vaccination, and a good disease control program we should be able to improve the quality produced and also increase our profit. Several times we have witnessed a situation that looked like the end of our poultry business. Then we began to wonder what else we could do except fight our way back into a profitable business.

After going through these experiences, there is no doubt that we will continue to grow more and better broilers. We feel our customers will keep coming back bringing new ones with them each year.

So when you see those long pillows of blue smoke going up from "Cherry Lane Farm" you will know the Boggs boys have cleared more range land for their pullets and have started more broilers under their wood burning brooders. The Boggs girls will be gathering more of those big brown and white eggs for the breakfast of champions.

Broilers can be grown for about $40 a thousand less cost in summer than in other seasons, due to lower feed and heating requirements according to Maryland Bulletin A-62.

It's interesting how long it takes some broiler growers to learn how to use the chick placement reports of the B.A.E. in their plans. The total chicks placed and weekly market price of broilers in relation to the weekly averages of the past year or two is a fairly reliable index of what prices are likely to be 10 or 12 weeks from the date one plans to put in chicks.

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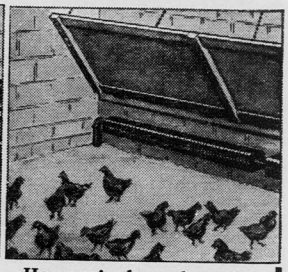

Hover raised to release desired amount of heat as chicks grow and venture out into brooder area.

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ANIMAL FATS IN POULTRY FEEDS

G. LYNN ROMOSER, Poultry Department, University of Maryland

In recent years there has been a steadily growing surplus of animal fats resulting largely from increased consumption of meat and the gradual replacement of soaps, made from fat, by synthetic detergents. This increased availability of fats has presented somewhat of a problem relative to their marketability. However, recent investigations direct attention to the possibilities of using animal fats in poultry feeds. In fact, several manufacturers are now installing equipment to facilitate the addition of fats to feeds and such feeds will be available in the near future. From an economic point of view, at present market prices, animal fats are available at relatively low cost when compared with other sources of energy. This factor may tend to decrease, to a slight extent, the cost of the feed.

An important factor to be considered wherever fats are added to a feed is that of rancidity, particularly if the feed is to be stored over extended periods of time. If the fat should become rancid, subsequent oxidation of certain vitamins will ensue. The vitamins most likely to be destroyed by the oxidative process are A and E. To prevent this, only stabilized fats should be added to the feed. These stabilized fats are fats to which an anti-oxidant has been added. They are reasonably stable and do not constitute a problem in so far as vitamin destruction in mixed feeds is concerned.

Levels of fat as high as 10 per cent have been fed to laying hens experimentally, without any undesirable effects. In other experiments wherein broiler chickens were fed a level of 4 per cent fat no adverse effects were noted. In view of the limited data available at the present time relative to the level of fat to add to the diets of layers or broilers, no definite or optimal values can be given. It is estimated that from 2 to 3% of stabilized animal fats may be used with no adverse effects.

Inedible fats should increase palatability, improve the texture and general appearance of the feed, and control dustiness. In addition, present work indicates that the efficiency of feed utilization should be improved somewhat.

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HIGH DIGESTIBILITY IS THE ANSWER TO REAL HIGH EFFICIENCY

It is important to keep in mind that the net cost of feeding is largely dependent on how well the broiler utilizes its feed. The degree of digestibility determines the degree of efficiency of feed utilization. As digestibility is increased so is efficiency of feeding increased or improved! In MA-CO Complete BROILER RATIONS we have eliminated those ingredients which are bulky and fibrous by nature and less palatable, less digestible and low in productive energy. Instead, we have substituted highly digestible yellow corn, which when adequately balanced with fish meal proteins, fish solubles, vitamins and minerals—results in a diet more attractive to the birds, more palatable and *much more digestible.*

MAKE THE BAG COMPARISON

Because of this low fiber formulation, MA-CO rations are heavy and compact. Side by side with a bag of conventional rations you will quickly note the smaller size of the MA-CO bag—from 8 to 10 quarts less in volume — yet with more productive energy. Thus, broilers get more nutrient value in each beakful to materially extend your feed dollar.

IMPORTANCE OF YELLOW CORN

To note the importance of variance in ingredient values as related to efficiency of use, — let's compare yellow corn with other ingredients. In terms of productive energy — 100 lbs. of corn is equal to 150 lbs. of average oats; 238 lbs. of wheat-bran; 197 lbs. of standard middlings; 370 lbs. of alfalfa meal, 15% protein. These comparative values should make it clear to you why we have entirely eliminated oats, bran, standard midds and alfalfa meal from all MA-CO Complete BROILER RATIONS.

DRIER LITTER

Another factor that is mighty important to MA-CO feeders is that litter problems are greatly reduced. In feeding MA-CO Complete BROILER RATION there is a great reduction in the weight of the droppings produced. Droppings are more concentrated and carry much less moisture. Drier litter is definitely an aid in reducing coccidial organisms that are capable of reinfecting the bird.

MA-CO CONDITIONING MASH

Don't forget to use MA-CO Conditioning Mash following drug and vaccination treatments or when appetite lags in the presence of disease disturbance. MA-CO Conditioning Mash carries a high level of lactose sugar and a high potential of lactic acid that is available to the bird in the lower digestive tract which is usually the seat of many disturbances. MA-CO Conditioning Mash is available with and without 100 grams (.011%) of aureomycin.

START CHICKS ON MA-CO

Why not put MA-CO's complete nutrition to work to help you realize better results from your next broiler stock? Make your own test. Place a pen or two on MA-CO Complete BROILER RATION and keep comparative records with other pens on the feed you are now using. See for yourself what real high efficiency can do. Phone or see your nearest MA-CO dealer.

MARITIME EXTRAS

MA-CO BROILER RATIONS are distributed by outstanding dealers in the 13 northeastern states, all well qualified to help you with all poultry feeding matters. A full staff of competent Maritime field service representatives is also available to apply the knowledge of modern nutrition, management and stock selections to fit your exact requirements.

EAT MORE CHICKEN

Always Nutritious, Easy to Prepare, Poultry adds a festive touch to your table. Why not plan to serve a Broiler next Sunday?

Maritime Milling Co., Inc.

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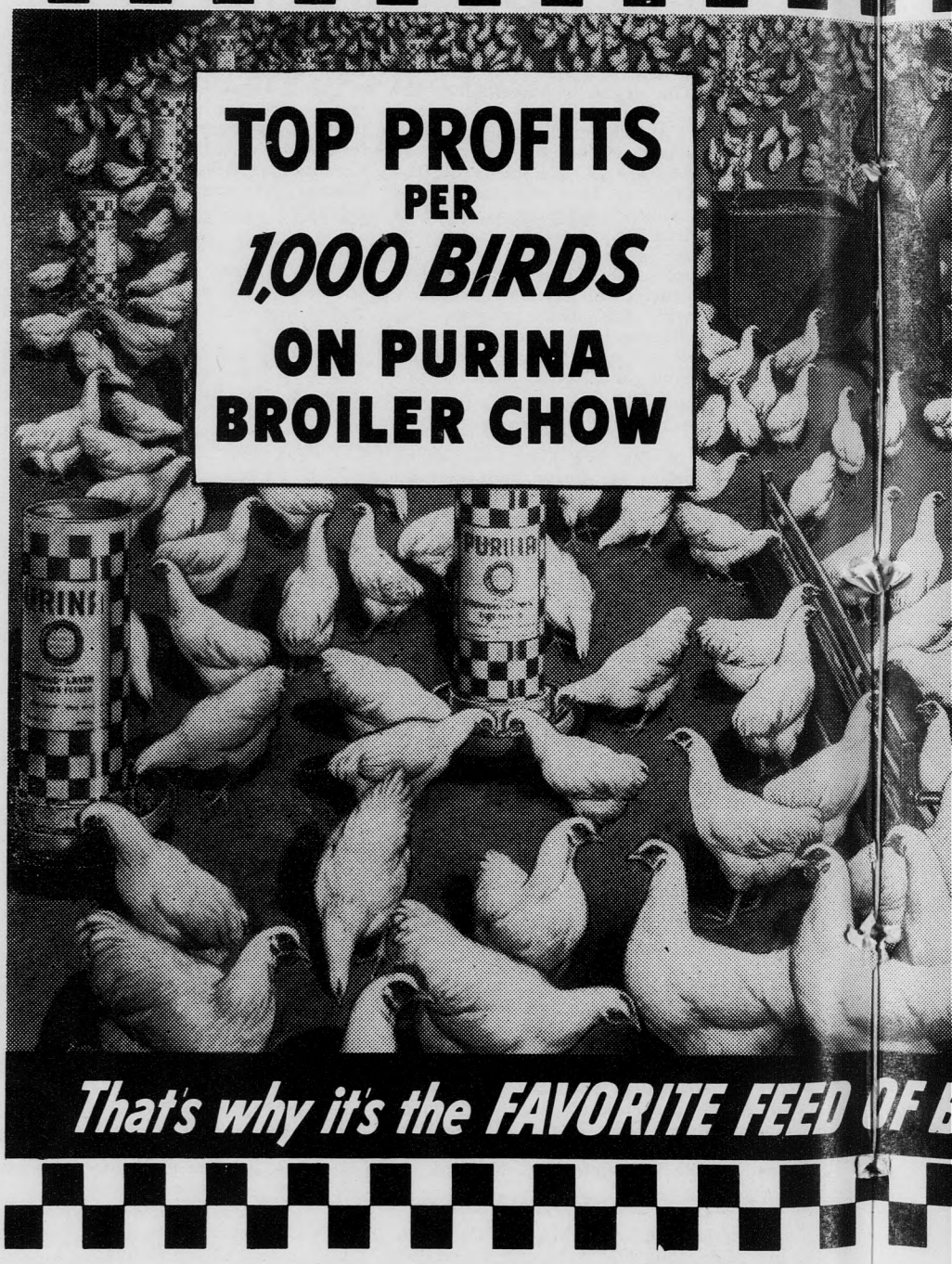
Also Manufacturers of famous MA-CO Turkey Rations, B-B Poultry and Dairy Rations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ON PURINA
BROILER CHOW
That's why it's the FAVORITE FEED OF

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CHOW
EED OF BROILER MEN

IMPROVEMENT OF BROILER BREEDING FLOCKS IN MARYLAND

C. R. DAVIS, *Supervisor,* Maryland Poultry Improvement Plan

Since the inauguration of the N.P.I.P. in 1935, great progress has been made in the improvement of the broiler. The quality of the "meat type" bird of today far exceeds that of 1935. The age of the broiler industry and the N.P.I.P. are about the same; they have "grown up" together. In the beginning pullorum was prevalent, and the grower would aim to have a 3 to 3.5 lb. bird in 15 weeks. Today pullorum is an exception rather than the rule and the grower aims for a 3 to 3.5 lb. broiler in less than 12 weeks. Pullorum control has been largely due to the supervision under the N.P.I.P. The quality of the bird is jointly due to the breed improvement portion of the N.P.I.P., the great progress of the quality of feed, and the progress of the breeder and hatcheryman in producing a better and faster growing bird.

Strict supervision of the management, culling and other phases of breed improvement program since the beginning of the N.P.I.P. has been a large factor in the improvement of the quality of the broiler breeding flocks. This undoubtedly has also assisted in the control of some poultry diseases.

A great deal of dependence has been left to the breeders of other states to produce replacement stock for Maryland hatching egg producing flocks. There is no just reason why Maryland cannot produce its own. While replacements have come mostly from elsewhere, the strict culling of these breeders under the supervision of the Maryland Poultry Improvement Plan has been a great factor in producing a better broiler chick.

When the N.P.I.P. was started, Maryland was testing around 100,000 birds with 8.8 percent reaction. This past season over 700,000 tests were run for pullorum in Maryland with 0.16 percent reaction. This effective pullorum control method is largely due to the supervision and control under the N.P.I.P. in all states concerned.

Indiana broiler growers report less picking and quieter flocks when blue light bulbs and blue paint were used on windows as compared to red bulbs and paint.

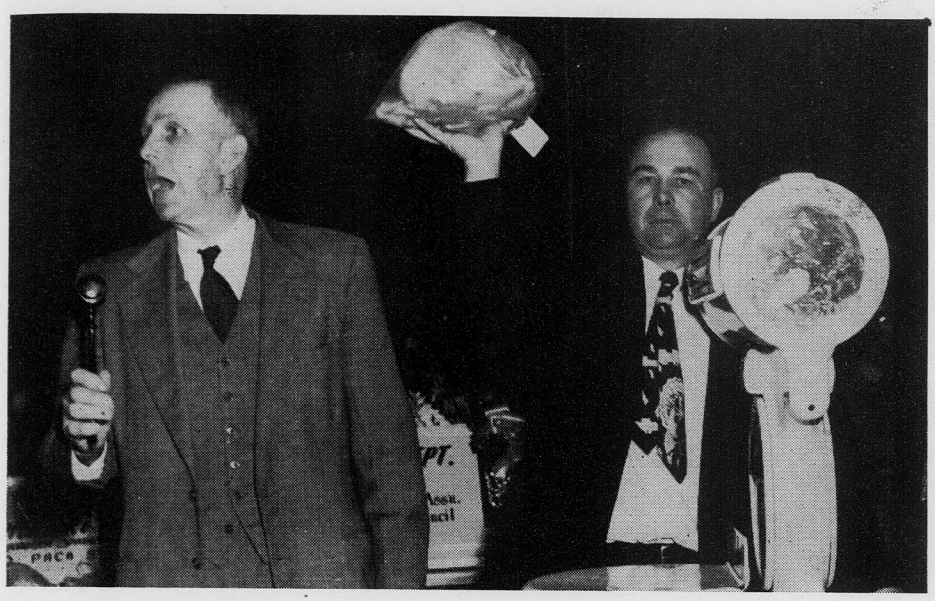
TRAPPE FEED SERVICE

PURINA BROILER CHOWS

FEEDING ADVISORY SERVICE

TRAPPE 2861 **TRAPPE, MD.**

Turkey Section



Champion Turkey at $7.00 Per Pound

Auctioneer Charles A. Hobbs, Ellicott City, sells champion Maryland carcass which defeated 24 other fine birds for top honors at Maryland Dressed Turkey Show in Baltimore January 9. Morris G. Smith, President of the Maryland Producers' Association, holds the champion for the crowd to see.

MARYLAND TURKEY PRODUCERS ASSOCIATION

President ..... Morris G. Smith, Ellicott City, Md.
Vice-President ..... Gerald L. Hartman, Salisbury, Md.
Secretary-Treasurer ..... Ruth S. Taylor, Gambrills, Md.

DIRECTORS—Mrs. Howard C. Taylor, Easton; Hobert L. Norman, Charlotte Hall; Pressly S. Taylor, Jr., Gambrills; Samuel A. Royer, Jr., Thurmont; C. Ellsworth Iager, Fulton; Russell H. Hinds, Jr., Middletown; Pete Schusert, Sparks; Essel Farlow, Pittsville.
Principal activities of the Association in 1953 were:

1. Dressed Turkey Show and Auction of birds at the 21st Maryland Poultry Products Show, Lord Baltimore Hotel, Baltimore, Jan. 6-9. Grand Champion bird was raised and shown by C. Ellsworth Iager, Fulton, Md., and brought $7.00 a pound for a total of $171.50. The bird graced Governor McKeldin's table at Annapolis later in the month.
2. The Summer Meeting of the Association was held June 10 ,Hotel Plimhimmon at Ocean City, Md., with a delicious turkey dinner and excellent program. Speakers were Sterling A. White, Ralston Purina Company, and C. C. Warren of the Poultry Division, U.S.D.A. "Jerry" Hartman was Chairman of the Committee on Arrangements.
3. Several Directors' Meetings held at members' homes during the year were very constructive and enjoyable.

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Maryland U. S. Approved U. S. Pullorum Clean

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- Delivered to you strong, healthy, full of life.

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Charlotte Hall, Maryland — Phone: Mechanicsville 45

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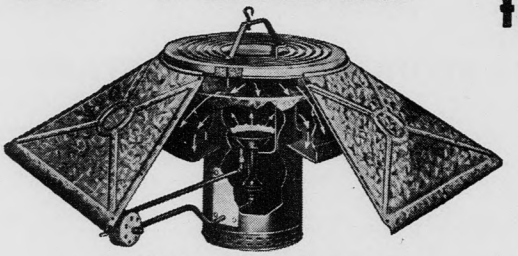

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ARTIFICIAL INSEMINATION AND HATCHABILITY PROBLEMS IN TURKEYS

C. S. SHAFFNER, Poultry Dept., University of Maryland

When one considers the cost of producing turkey hatching eggs, it is no wonder that any system receives attention if it promises to improve fertility. The seriousness of the problem is brought to light in a report from the Oregon Experiment Station. Data were collected from turkey producers who handled 2½ million eggs. The average cost of these turkey eggs was 32.9 cents per egg, the average fertility was 71.3 percent and the average hatchability of all eggs set was 60.4 percent. These data show that turkeys had to lay an average of 35 fertile eggs per hen to cover costs; therefore, only those hens laying more than 35 fertile eggs were profitable. One of the most important factors influencing the number of fertile eggs was the percentage fertility. It was calculated that the producer could increase the season's profit by as much as $1.00 per hen by increasing fertility by 4 percent.

These data certainly show that our present strains of turkeys leave much to be desired as far as reproductive efficiency is concerned. There is no doubt that the factors of egg production, fertility, and hatchability of fertile eggs can be improved through breeding programs aimed at this goal. Although breed improvement is a slow and costly process, it offers the surest way to more efficient animal production.

In the meantime, though, it is necessary to use the best stock and the best practices that we know of. And this brings up the question of whether or not to use artificial insemination. Numerous articles have been published on the subject and the claims indicate that fertility can be improved by from 5 to 10 percent. This would indicate, according to the figures quoted above, that profits might be thus increased by from $1.25 to 2.50 per hen. If a poultryman had as many as 100 hens, this increase would amount to enough to be important. On the other hand, it must be remembered that most of the information so far available has come from experiments where a well-trained operator has been doing the inseminating and one has only to guess at what the cost of additional labor and facilities would amount to.

Considering all aspects of the situation, it would appear that the technique of artificial insemination does offer enough promise to warrant trying if the producer is raising Broad Breasted Bronze birds and has experienced low fertility. The technique is easy to learn and the equipment required is inexpensive. The first year a combination of artificial insemination and natural mating should be employed and if this proves to improve fertility, the following years, when the operator has gained more experience, the natural matings can be discontinued. Since under natural conditions some hens seldom if ever mate, combining the two systems often improves fertility as all hens will be inseminated at least occasionally.

Regardless of the system of mating used, the breeder should use utmost care in selecting the toms, being sure that they have good body conformation, are not too fat, and have been lighted well in advance of the laying season if early poults are to be hatched.

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Geese, Ducks, Pigeons, Birds

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HOW TO REDUCE FEED COSTS IN RAISING TURKEYS

W. H. RICE, University of Maryland

A well known banker once said "Farmers who worry less about the market, and think more about keeping production cost per animal or bushel down, seem to be the ones who come out the best."

Regardless of what you think of his philosophy, the fact remains that turkey growers, along with other farmers, must face times when war or other forms of inflation will no longer hover around to make things rosy despite shortcomings in judgment or management.

In the cost of producing turkeys to market maturity (22-26 weeks of age), feed costs represent approximately 60% of the total before marketing costs are added. Since feed is by far his principal cost item, a turkey producer is wise when he concentrates his primary study upon ways and means to secure efficient feed conversion of his birds.

For the grower using confinement methods, this means concentration upon fast growing strains, using the most efficient rations available, elimination of waste in handling feed and rigid control of disease. For the grower who utilizes range methods, still another "tool" is available for his use. That tool is use of forage crops which the turkeys themselves harvest.

Under a well planned system of range forage crop management, 25 or 30 percent of the total feed required for growing turkeys may be supplied by the farm acreage.

Among the possibilities for most Maryland areas are the following crops in a calendar schedule for an average season:

May 1-July 15—Semi-permanent pasture of Ladino clover-orchard grass-seeded previous August or September or in previous years. One acre per 150 birds. Use movable roosts, feeders, and fountains, and move every day or two across the field to prevent killing the stand of plants and encourage grazing.

July 15-Sept. 1—Supplemental pasture — Thickly planted corn, soybeans, buckwheat, rape, or Kudzu (Eastern Md.) 1 acre per 150 birds. Move across field as on pasture.

Sept. 1-Nov. 30—Early maturing hybrid corn, or corn and soybeans (2 rows each alternating) with rye or rye-grass broadcast at last cultivation. One acre

(Continued on Page 59)

Michigan Broad White
Beltsville Small Whites
Broad-Breasted Bronze

POULTS and EGGS

U. S. Approved Pullorum Clean
Exclusive Turkey Hatchery
Poults Prepaid or Delivered
Discounts on Early Orders
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When you need poultry medicines, ask for Dr. SALSBURY'S **complete line of poultry medicines**

GREAT NEED FOR IMPROVING TURKEY HATCHABILITY

MORLEY A. JULL, University of Maryland

Securing good fertility and good hatchability of fertile eggs has always been a serious problem with the majority of turkey breeders, especially in the case of Broad-Breasted Bronze.

Based on the results of surveys made in the states of New York and Washington about a decade ago, only about 53 poults were hatched per 100 eggs set. This low percent hatch of all eggs set was due to too much infertility and too low hatchability of fertile eggs set.

Data pertaining to the relatively poor hatching results secured from the eggs of certain strains of Broad-Breasted Bronze are available in the turkey ROP Summary for 1952 and 1953, the report having been issued by the United States Department of Agriculture.

For two years, only 63.1 poults were hatched per 100 Broad-Breasted Bronze eggs set whereas 77.8 poults were hatched per 100 Beltsville White eggs set. Is it possible that the many BBB breeders are not paying sufficient attention to selecting their breeding stock each year on the basis of fertility and hatchability? Within the BBB variety, there was great variation in percent poults hatched per 100 eggs set by different breeders. The lowest hatch was 23.0 percent and the highest hatch was 86.0 percent. The average of the best 5 was 78.5 percent and the average of the poorest 5 was 48.5 percent. Certainly, the breeders with the poorest results should consider the possible effects of faulty incubation, poor shell quality of hatching eggs, improper holding of hatching eggs, low fertility, and poor hatchability. Much more attention should be paid to the selection of breeding stock for fertility and hatchability, both of which are inherited.

HOW TO REDUCE FEED COSTS IN RAISING TURKEYS

per 150 birds. Moving roosts spreads manure and promotes better sanitation but birds will clean up all grain and rye if feeders are moved across the field to encourage consumption of the beans and grain.

Such a system involves labor of moving equipment often, but roosts, feeders, etc., designed for quick hitch behind the tractor saves time, eliminates most of the manure handling, and means better disease control.

Also, it means replacing purchased feed with lower cost home grown feed which the birds harvest themselves, thus saving labor in handling purchased feed.

Where land is available for growing forage crops for the turkeys, no better system of increasing the soil fertility can be used. The turkeys are good for the land, and the produce of the land is good for the turkeys.

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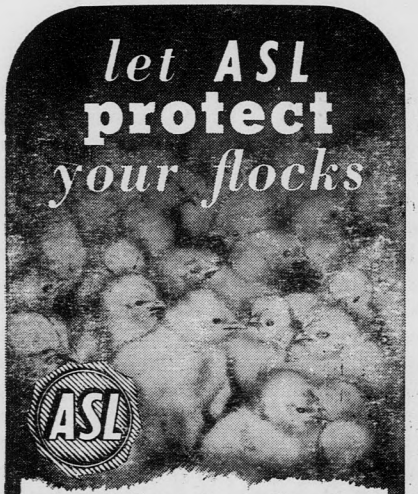

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BELTSVILLE
WHITE POULTS
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PULLORUM TESTING OF TURKEYS IN MARYLAND

C. R. DAVIS, *Supervisor,* Maryland Turkey Improvement Plan

Disease is always a factor in plant and animal life, and turkeys are susceptible to their share. One dreaded disease is Pullorum. The supervision of a pullorum testing program under the N.T.I.P. has kept this disease under control in most instances. Pullorum has never been as serious in turkeys in Maryland as was the case in chickens. However, very few turkeys have been used as breeders that were not tested. The following chart is a record of turkey testing for pullorum in Maryland in the past ten years.

Year	Number Flocks	Number Test	Percent Positive
1943-44	298	18630	0.94
1944-45	303	21097	0.34
1945-46	316	33452	1.56
1946-47	196	34147	0.90
1947-48	98	17832	0.21
1948-49	104	21860	0.15
1949-50	176	31804	1.26
1950-51	171	38113	0.19
1951-52	131	23963	1.01
1952-53	76	21744	0.07

Previous to the 1952-53 season there were many small flocks of 25 or less breeders that ran with the other fowl on farms, where many reactors were found. The majority of the turkey breeding flocks in Maryland now are the only fowl on the premises. It is believed and hoped this will hold or reduce the percent reactors below the 1952-53 level.

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Seal Leg Bands of best quality. Sizes to fit all breeds of poultry. Extra heavy bands turkeys.

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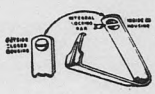

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Organizations Section

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Vice-President ..... Donald A. Wilbur, Salisbury
Secretary-Treasurer ..... William C. Scott, Marion

DIRECTORS—C. Bounds Phillips, Quantico; Otis G. Esham, Parsonsburg; Al Lieberman, Salisbury; Ralph L. Mason, Newark; "Chuck" Fulton, Snow Hill; Ed L. Kelley, Pocomoke; Wilbur L. Smith, Princess Anne; E. G. Hayman, Princess Anne; N. T. Whittington, Marion.

Principal activities of the year 1953 were:

1. Annual Winter Banquet Meeting, Snow Hill, March 21st. 250 present.
2. Offered awards for best poultry exhibit by 4-H or F.F.A. members at Wicomico, Worcester, and Somerset County Farm Shows.
3. Active in promoting legislation to remove personal property tax from young poultry in Maryland.
4. Sponsored regional poultry meeting on disease, housing, and marketing, November 18. 250 present.
5. Supported Delmarva Chicken Festival at Harrington, Delaware.
6. Monthly Directors' Meetings to promote details of above and other projects.

It may be a matter of opinion, but a well informed turkey authority recently said "Of all the turkey growers east of the Mississippi River who produce hatching eggs, the real breeders can be counted on the fingers of one hand." Well, that puts a lot of turkey folks in the ranks of being just reproducers.

Ever try "hogging down" corn and soybeans with turkeys? An early maturing yellow hybrid, with soybeans planted alternately two rows of each, can save 15% on the feed bill after September 1st.

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GARRETT COUNTY TURKEY GROWERS

The Garrett County Turkey Growers was organized October 3, 1952, at Oakland, Md., under sponsorship of local businessmen and the Mountain Top Chamber of Commerce to promote the stability of the growing turkey industry in this area.

In March, 1953, a Slogan and Trade Mark Contest was conducted to aid in plans for Marketing "Mountain Top" turkeys. Over 100 entries from 16 states were received. Plans for perfecting an improved marketing plan for "Mountain Top" turkeys are under study, along with other projects of value to this important industry.

In recent years Garrett County has produced about 15 percent of Maryland's total turkey crop, mostly large birds for holiday trade.

OFFICERS

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Vice-President ..... Russell Teets, Accident
Treasurer ..... John Bowman, Accident
Secretary ..... Lowell Loomis, Oakland

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For better finish and feathering on turkey broilers, restrict lighting or daylight in houses to 10 hours per day for the last three or four weeks.

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FEED — SEED — GRAIN

J. McKENNY WILLIS & SON, Inc.

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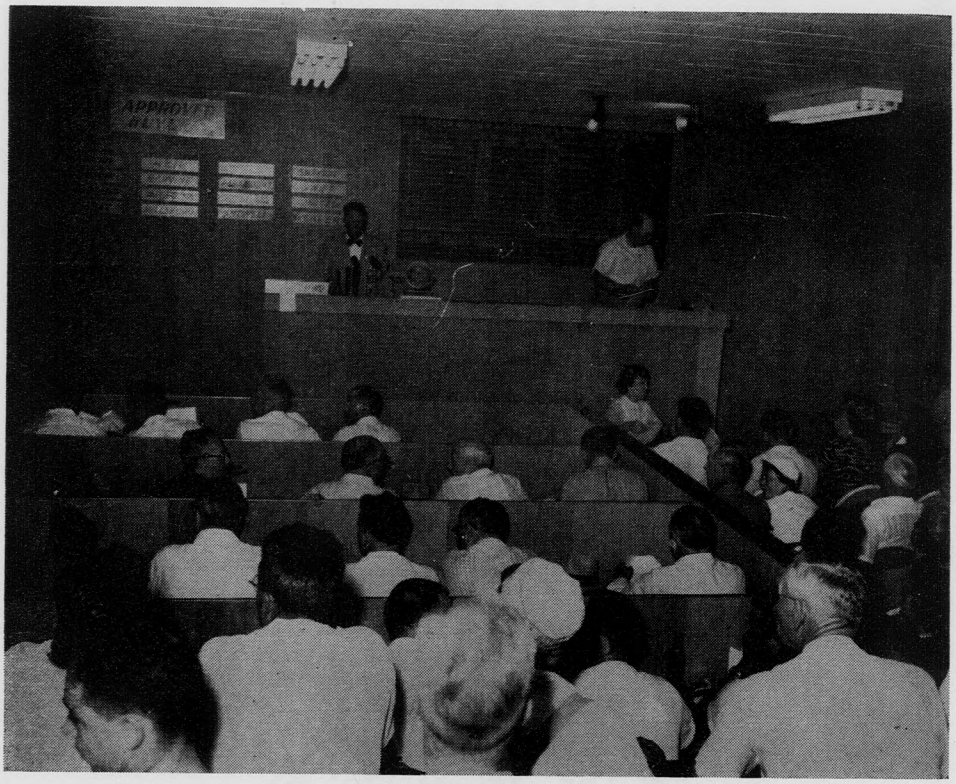
Economics and Marketing Section



THE EASTERN SHORE POULTRY GROWERS' EXCHANGE IN ACTION

Buyers approved by Exchange Credit Committee are at left, with approved firm names listed on wall above. Radio announcer at extreme left center. At right are a part of the grower-sellers and Exchange clerks. At sales table, left, Carroll Long, Auctioneer, draws lots for order of sale of birds listed by growers on the previous day and which have been visited and appraised by buyers prior to the current sale. At sales table, right, Manager James P. Winchester, III, records sales data and posts buyer, sale price, and moving date on blackboard on wall covering each lot as it is sold.

Sales fees are $1.00 per thousand head of birds, and seller may accept or reject the highest bid.

With the "bugs" mostly out of mechanical feeders, they are in a more favorable position than ever before. It should be realized that they are, after all, just machines, and do the work for which they are designed just like other machines do. They, nor any other machine can remove the necessity of intelligent coordination to insure success.

THE EASTERN SHORE POULTRY GROWERS' EXCHANGE

JAMES P. WINCHESTER, III, *Manager*

Efficient marketing of poultry is vital to profitable production, a phase which has not been given the proper attention in the past. With the method which the Exchange has set up, poultry marketing is on a strictly business-like basis. The flocks have the advantage of competitive buying and a set movement date of flocks covered adequately in the contract is in effect for each sale made on the Exchange.

The Credit Committee of the Exchange establishes a credit rating for for each buyer after surveying the financial statements submitted by him. If the buyer passes the Credit Committee he is then approved and his name is put on the approved buyers list. The bookkeeping system of the Exchange is such that a record is kept on each buyer so that he does not exceed his credit limit.

The pay period for poultry purchased through the Exchange is seven days unless a buyer wishes to pay within 24 hours from movement of any portion of the poultry, in which case he can discount the sale price 1/8 cent per pound.

With the proper support of all growers, hatcherymen, feed dealers and other interested people the Exchange can grow and is growing into a larger and stronger organization that can develop a program much broader than the holding of sales. Already such committees as the Legislative Committee, Promotional and Educational Committees, and the Scales Committee have been appointed and are working for the interest of our industry.

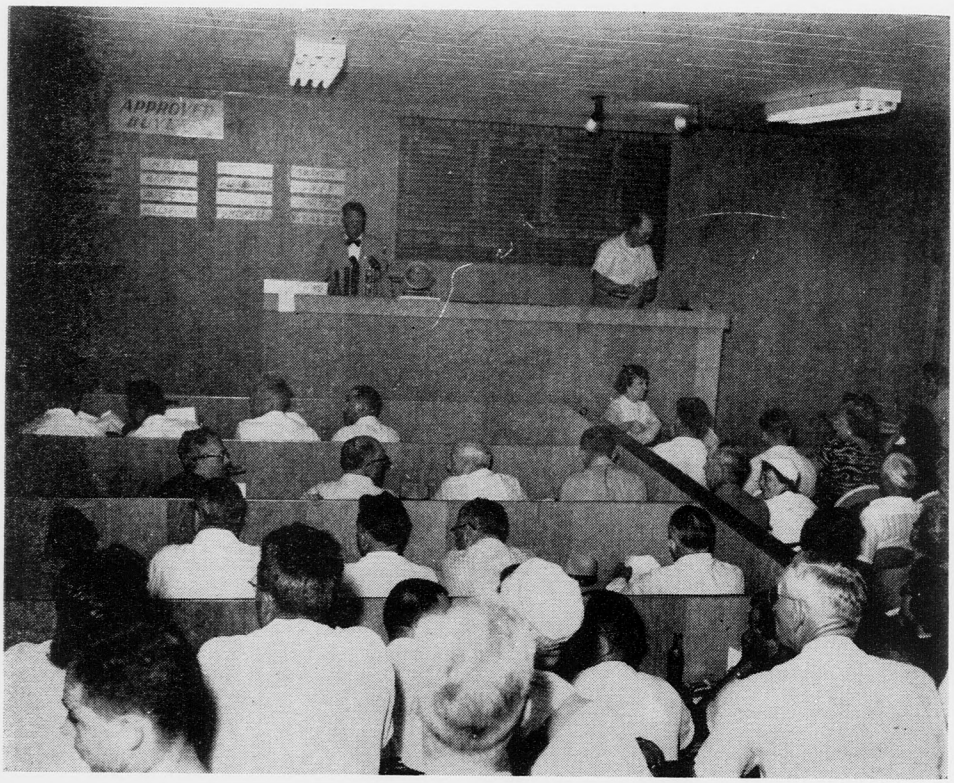
Quality is being stressed strongly by the Exchange and we all must try harder to raise a quality bird so our processors, who are also becoming quality conscious, will have an even better raw product to work with in order that Delmarva poultry will be able to regain its place on the competitive consumer markets.

By Wednesday, October 14, 1953, there had been 312 different sale days, the first sale having been held on June 24, 1952. During these 312 auctions, approximately 700 different growers made nearly 8,000 listings of birds, consisting of 82,617,000 chickens and a few thousand turkeys and guineas. Of this number over 73,000,000 birds were sold.

Any and all surplus monies derived from the fee paid for marketing poultry through the Exchange is put back into the industry in the form of supporting educational programs, consumer advertising, etc.

This Exchange belongs to all of us. Its officers and directors serve without pay. It is a non-profit organization and just how much it contributes to our welfare and to the welfare of our multi-million dollar poultry industry depends directly on how much support all of us give it. A chain is just as strong as its weakest link and the growers are the links in this chain that, so far, has helped pull a lot of things over the soft spots.

Economics and Marketing Section



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Day after Day — More and More

LEADING BROILER GROWERS ARE SWITCHING TO FEEDS MADE WITH HI-PRO-CON*

Here are 4 BIG REASONS WHY

1. More weight gain per pound of feed. As much as 5% more weight with 5% less feed.
2. More live birds reach the market. Up to 3 more birds per 100 chicks.
3. Days cut off feeding time. As much as 5 days less.
4. Better carcass quality and higher prices. 21 more Grade A carcasses per hundred birds.

What Is Hi-Pro-Con?

HI-PRO-CON is the most efficient, most economical source of protein you can buy. Made from thoroughly clean select beans, special heat-treated 50% Soybeans Oil Meal, HI-PRO-CON has hulls and foreign material removed. That's why you get truly high-efficiency feed when you buy feeds made with HI-PRO-CON. Test after test have clearly demonstrated that no other protein ingredient makes feeds so uniformly high in quality . . . feeds that produce maximum results every time. For complete information write today!

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*T.M. for food product of A. E. Staley Mfg. Co.

HITS THE MARK

ONLY Staley's MAKES HI-PRO-CON

MARYLAND — A DEFICIT EGG PRODUCING STATE

HAROLD D. SMITH, University of Maryland

If only the eggs produced in Maryland were consumed in Maryland, consumers in the State would eat fewer than one-half as many eggs as they are now accustomed to eating, not to mention the eggs needed for hatching purposes. According to the best estimates available, the people of Maryland could use 1 billion eggs for table use and 80 million for hatching purposes if the poultrymen of this State could produce that many eggs. As a matter of fact, about 500 million eggs are now being produced annually from the 3 million layers on farms — less than half enough eggs to meet domestic needs.

Why does Maryland continue to be a deficit egg producing state? One is that the growth in population over the past 25 years has greatly exceeded the increase in laying hen numbers. Furthermore, there has been a greater increase in population in Maryland than for the United States as a whole during this period. As a result, Maryland is not supplying its demand for eggs now to the extent that it did 25 years ago. Population trends show that the number of people living in Maryland has increased by 53 percent during the 25 year period while egg production has increased only 30 percent. Changes in egg production by Maryland poultrymen have failed to keep pace with the increased demand for eggs including both market and hatching eggs, and in fact, have not kept pace with changes in egg production for the rest of the country.

Broilers Competitive

Farmers in Maryland, unlike those of some areas, have a number of very profitable enterprises to choose from in their farming operations. Take, for example, the broiler business on the Eastern Shore. Poultrymen in that area have specialized in broiler production due to the impetus given by the feed man and others in providing credit, making it relatively simple to get into the business. Two things in particular make the broiler business inviting to newcomers; the low investment required and the quick return on investment. Farmers can get in and out of the business with little difficulty.

The 60 million broilers plus 5½ million farm chickens raised in Maryland afford egg producers in the state with what appears to be a good demand for hatching eggs. The number of eggs needed for hatching purposes probably exceed 80 million annually yet about three-fourths of these eggs are shipped in from outside areas. Poultrymen, in commenting on this situation, frequently mention that hatching egg flocks in the broiler areas are subject to broiler diseases which is a discouraging factor to egg producers. Mention is also made of the point that little encouragement has been given egg producers for entering the production of hatching eggs.

Other Factors

Other factors mentioned in connection with Maryland being a deficit egg producing state are: lack of proper price incentives, lack of local interest and industry promotion, too small quantity of eggs available to attract city wholesalers who buy in large quantities, local producers are not aware of the importance of egg grades and labeling, and that eggs of good quality can be bought out of state at competitive prices. There are no doubt other factors which have a bearing on this question of deficit egg production in Maryland but probably no single factor gives a complete answer to this question.

An Important Message To Poultry Raisers

Large Round Worms are the most prevalent of all worms in poultry and are the most damaging to pullets, broilers or laying flocks. You can easily expel and control them with Russell's Large Round WormR Powder and at the same time get these added advantages at no added cost. Russell's Large Round WormR Powder contains ingredients that stimulate the appetite and the production of red blood cells and you do not have to starve birds to get them to eat.

It contains chemicals that check the growth of mold and certain parasites.

It is used in the control of Mycosis and Trichomoniasis. It will not throw layers out of production.

CAN BE USED SAFELY

You are safe in using WormR Powder with birds that are in a run down condition or affected with Air Sac, Coccidiosis and so-called "Rot Gut" without fear of damaging birds with a worming treatment.

EASILY MIXED IN FEED

It takes only 7 oz. of Russell's Large Rorund WormR Powder to 100 lbs. of feed. You can mix it in your feed or have your local mixer do it for you. Many feed manufacturers have Russell's Large Round WormR Powder mixed in the worming mash they stock.

Manufacturers of a Complete Line Poultry Medicines and Biologics including New Castle, Fowl Pox and Laryngotraechitis Vaccines.

Russell's Worm R Powder is packaged in 8 different sizes. 3½ ozs. 75c. 7 ozs. $1.25. 14 ozs. $2.25. 5 lbs. $11.25. 10 lbs. $21.60. 25 lbs. $51.00. 50 lbs. $97.50. 100 lbs. $180.00. Dealer Discounts on Request.

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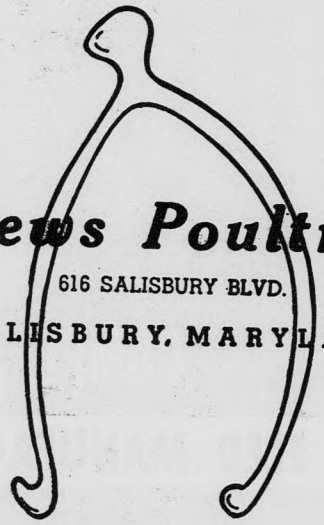

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SALISBURY, MARYLAND

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Student Participation in the Poultry and Egg Retail Merchandising Classes is Emphasized in the P.E.N.B. Demonstrations.

POULTRY AND EGG MERCHANDISING CLASSES IN MARYLAND

HAROLD H. HOECKER, University of Maryland

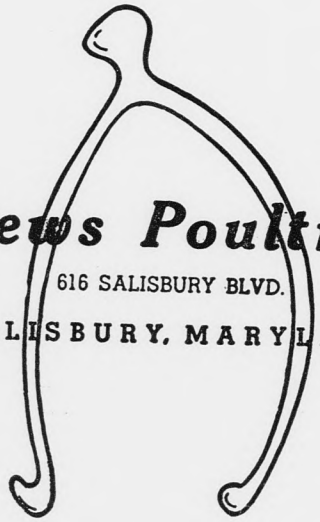
The Maryland State Poultry Council in cooperation with the University of Maryland Extension Service, has recently sponsored a number of one-night classes for food retailers on the latest techniques of merchandising poultry and eggs. The classes, held in cooperation with and under the guidance of the Poultry and Egg National Board, under contract with the United States Department of Agriculture, have been conducted in six major cities of Maryland, with an attendance of more than 500 retailers, wholesalers and processors of poultry and poultry products.

Each class is sponsored by a wholesaler or processor of poultry. The sponsoring wholesaler cooperates with the University Extension Specialist in setting up the classes and also supplies the poultry and poultry products necessary to conduct the demonstration. The principles of preparing, packaging, displaying, pricing and caring for poultry and eggs were demonstrated by the professionally trained Poultry and Egg National Board instructor.

The tremendous expansion of the broiler industry has brought about many changes in the merchandising practices today. Poultry today is sold to meet the

(Continued on Page 78)

Box 1013 Phone 2-1591



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(Continued on Page 78)

individual housewife's requirements whether it be parts, quarters, halves or whole.

The New York dressed method of handling poultry is the "cracker barrel" method used in the past. Today only about 40 percent of the poultry sold is New York dressed.

The per capita consumption of poultry, including turkeys, is approximately 34 pounds. For every 6 pounds of red meat sold, one pound is chicken. Chicken consumption has increased 41 percent in the past 10 years, whereas other meat has shown little or no gain. Much of this increase is due to pre-packaging and evisceration. The merchandising classes stress the importance of buying eviscerated chickens and demonstrates several methods of tray packing chicken parts, halves or whole birds. A price chart is used to show the cost of the various parts of a cut-up bird.

The importance of eggs in our daily diet, together with a demonstration on how to determine quality of eggs is another phase of the demonstration. With the per capita consumption of 412 eggs per year we can readily see that this is an important part of our diet.

Retailers were informed that only one-half of the eggs bought for table use are purchased through retail stores. When asked why they purchased their eggs where they did consumers gave two main reasons — convenience and freshness.

Instruction is given in the class on how to determine egg quality by means of candling.

An added feature of the course is a demonstration on the cutting up of a turkey. This includes the boning of the breast and making a boneless rolled roast of the white meat of the turkey.

It is recommended that only large birds of 20 pounds or more be used for selling cut-up parts. These birds yield a higher percentage of edible meat and will be more profitable to the retailer. Turkey parts may be sold in competition with any red meats as a planned one meal item.

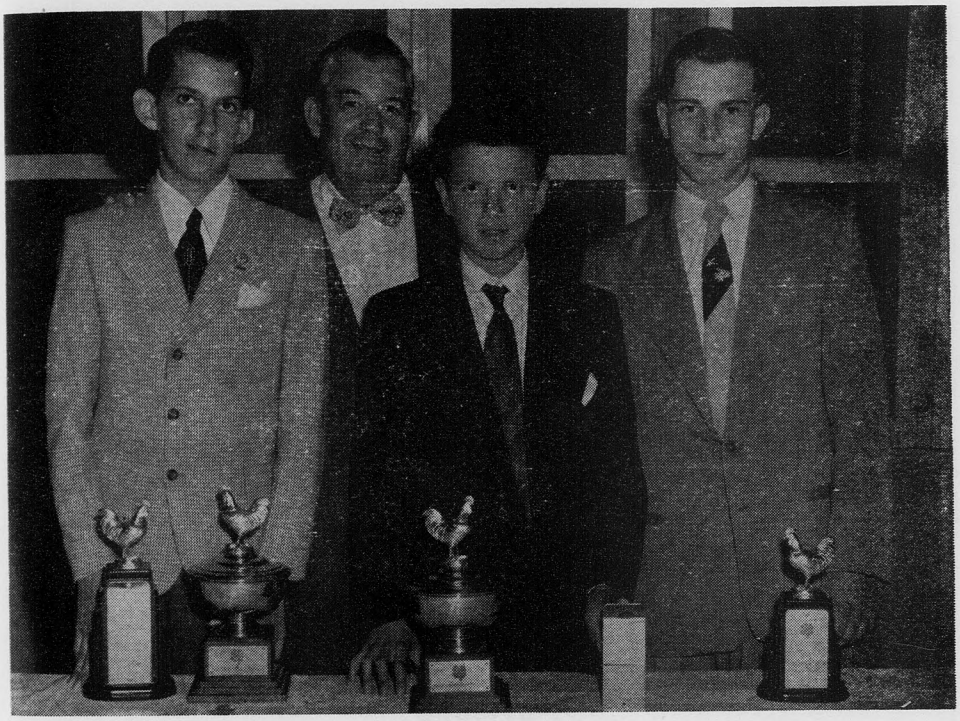
The display of poultry in the retail market is another important phase which is demonstrated in the classroom. Regardless of the high quality of an item in the retail store, if it is not properly displayed and cared for it will not meet the approval of the consumer. It is suggested that when selling chicken or turkey parts that ice should be used both with or without mechanical refrigeration. This will give the required moisture to prevent shrinkage and to maintain the bloom of the chicken. It is also suggested by the instructor that an attractive package be used when tray packing all types of chicken and chicken parts.

A research study is being conducted by the Department of Agricultural Economics and Marketing to determine the effect of the schools on the increase of sales of poultry and eggs. Results of the study indicate that those retailers attending the classes and putting into effect the recommended practices have realized very favorable increases in their sales.

A jeep mounted bin for spreading grain or pellets to turkeys or chickens on range is a labor and time saver.

Youth Section

THE 1953 MARYLAND JUNIOR BROILER PRODUCTION PROJECTS



Poultrymen — Today and Tomorrow

Name	Age	Address	% Mortality	Ave. Wt.	Feed Conversion
Donald Davis	12	Powellville, Md.	1.0	3.31	**2.52**
Johnny Karhu	14	Elkton, Md.	1.0	3.9	**2.48**
Billy Boggs	16	Mechanicsville, Md.	1.0	3.51	2.61

Shown above with Mr. Samuel Ahmuty, President of the Maryland State Poultry Council, Inc., are the winners of the 1953 Broiler Production Contest.

A total of 109 boys and girls from 16 counties participated in these projects. The projects were sponsored by the Maryland State Poultry Council ,Inc., in cooperation with the Maryland State Fair Board and the University of Maryland Extension Service.

The projects are designed to teach and encourage the economical production of quality poultry. Sixty percent of the total score of any one individual's project

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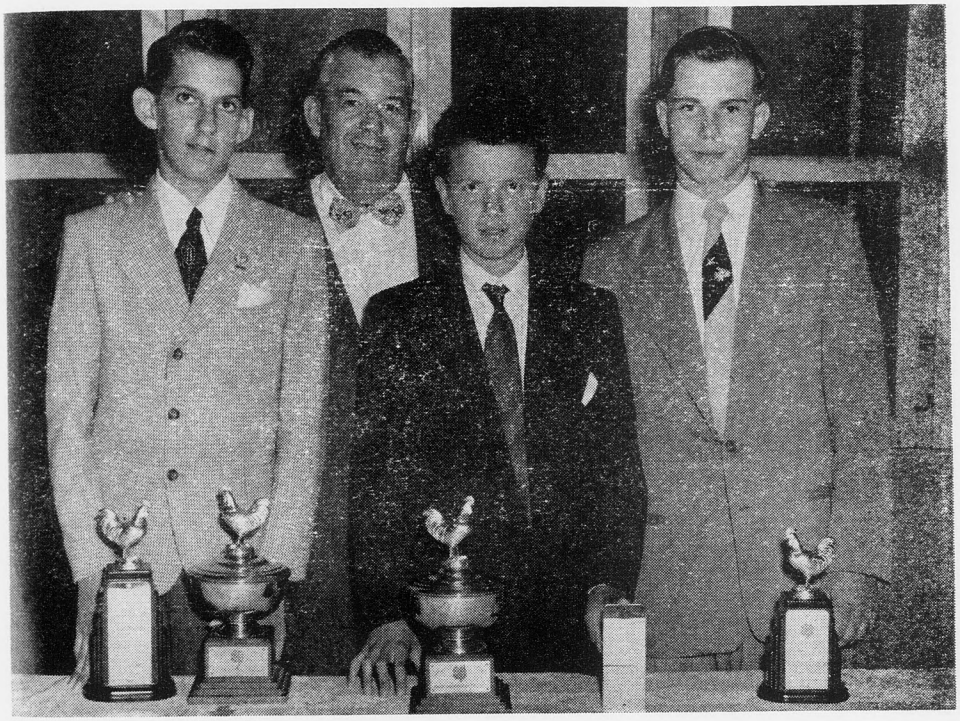

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The winners are important but of equal importance are the other 106 who gained in experience and know how. It is not possible to mention all of them but to them we say "Well done."

The Maryland State Poultry Council, Inc., should be complimented for initiating these projects. The Esskay Company, the Westminster Auction, and the many other firms and people who worked to make the projects a success can be proud of the part they played.

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Maryland F. F. A. Judging Champions

The F.F.A. Poultry Judging Team of the Northern High School in Garrett County, representing Maryland, took highest honors in the Poultry Judging Contest at the Atlantic Rural Exposition, Richmond, Virginia. This team was composed of Lewis Schlassnagle and Donald Glass, coached by Marvin Callis, all from the Northern High School in Garrett County. They competed with ten other teams representing ten Southern and Western States. Lewis Schlassnagle was the highest scoring individual in the contest.

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Easy to Say — Easy to Sell

COBB'S WHITE ROCKS "THE BIRD THAT SERVES THREE MASTERS"

Yes, its easy to say—and you'll find it's easier to sell when you can say "They're Cobb's strain." That's the experience of hundreds of hatcherymen whose customers demand the best strains, whether for meat or eggs.

Write for catalog and see why Cobb's strain meets today's needs so completely and profitably.

COBB'S PEDIGREED CHICKS, Inc.

Robert C. Cobb **Concord, Mass.**

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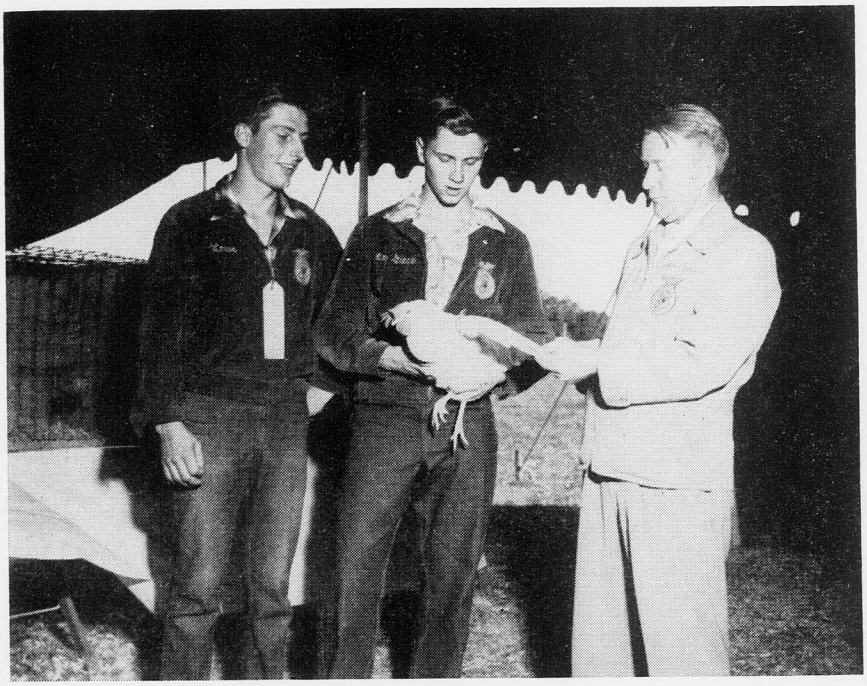

Maryland F. F. A. Judging Champions

The F.F.A. Poultry Judging Team of the Northern High School in Garrett County, representing Maryland, took highest honors in the Poultry Judging Contest at the Atlantic Rural Exposition, Richmond, Virginia. This team was composed of Lewis Schlassnagle and Donald Glass, coached by Marvin Callis, all from the Northern High School in Garrett County. They competed with ten other teams representing ten Southern and Western States. Lewis Schlassnagle was the highest scoring individual in the contest.

The Chick With The High I.Q.

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COBB'S WHITE ROCKS "THE BIRD THAT SERVES THREE MASTERS"

Yes, its easy to say—and you'll find it's easier to sell when you can say "They're Cobb's strain." That's the experience of hundreds of hatcherymen whose customers demand the best strains, whether for meat or eggs.

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COBB'S PEDIGREED CHICKS, Inc.

Robert C. Cobb Concord, Mass.

Represented in Del-Mar-Va by

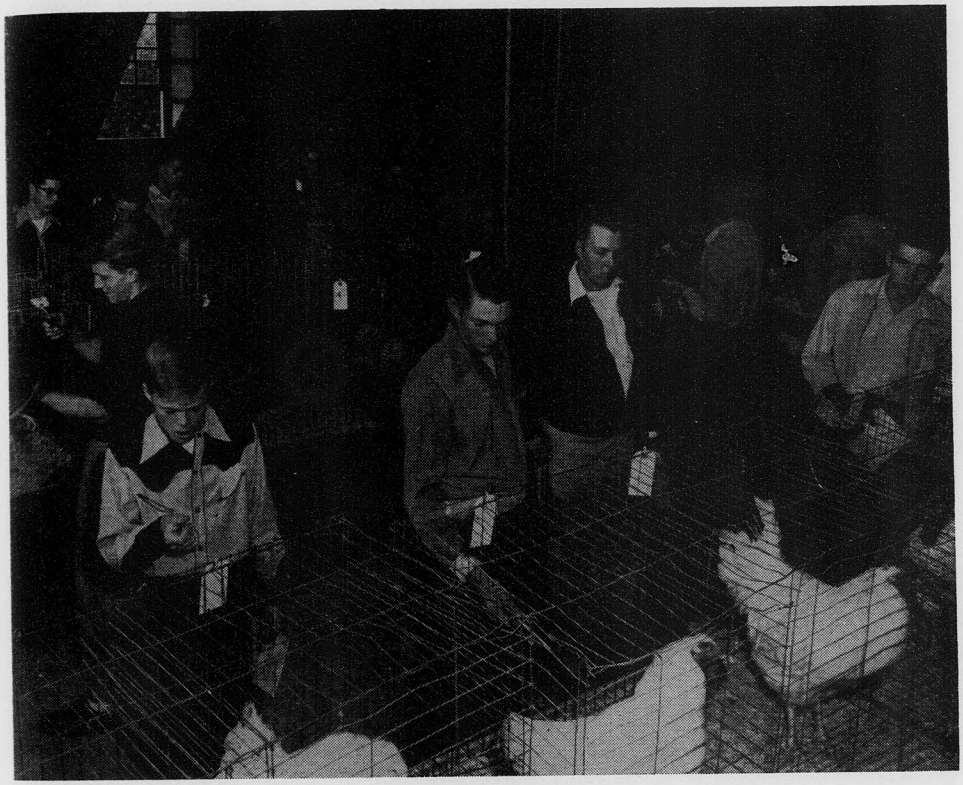
N. E. Calhoun, Ocean View, Del. Helen Carver Hodges, Marion, Md.

POULTRY DEMONSTRATION AND EGG JUDGING

Left to right: Gary Lawrence, Aquasco, Md., Poultry Production Demonstration; Dr. Lynn Romoser, College Park, Md., University of Maryland Poultry Department; Nora McPherson, Aquasco, Md., Poultry Production Demonstration; Helen Twining, Glen Arm, Md., Egg Grading Team; Mable Potter, Cambridge, Md., Poultry Foods Demonstration; Wayne McGinnis, Glen Arm, Md., Egg Grading Team; Roger Wolfe, New Windsor, Md., Egg Grading Team; Charlotte Mitchell, Cambridge, Md., Asst. Home Demonstration Agent; Merle Howes, Upper Marlboro, Asst. County Agricultural Agent.

Lester King, Jr., of Calvert County, has averaged a labor income of nearly $5.00 a bird on his 4-H turkey raising and marketing project for the past three years. His example can well be followed by others who are looking for poultry possibilities for boys and girls.

MARYLAND 4-H POULTRY JUDGING TEAM



These are the people who represented Maryland in the contest held in conjunction with the NEPPCO Exposition in Syracuse, N. Y. Each of the boys and girls pictured above had previously won the State contest in their particular division and thereby won the right to represent Maryland in the Regional Contest.

This is part of the program to encourage interest on the part of youth in sound poultry practices from the chick to the table. These young people work hard for this opportunity and they gain much from it but their gain is our gain, and all those in NEPPCO land who make this sort of thing possible deserve a hearty thanks. Each year the 4-H youth of the State compete in a poultry judging contest. This contest consists of selecting layers on the basis of egg production, culling the laying flock, selecting breeding cockerels, grading live poultry, and identifying breeds of poultry. The picture shows the contestants at work.

The orchids this year go to Rudy Ricketts, Rockville, Md.; McKendree Fulks, Gaithersburg, Md.; Billy Calloway, Mardela, Md.; and George Kemp, Gaithers-

POULTRY DEMONSTRATION AND EGG JUDGING

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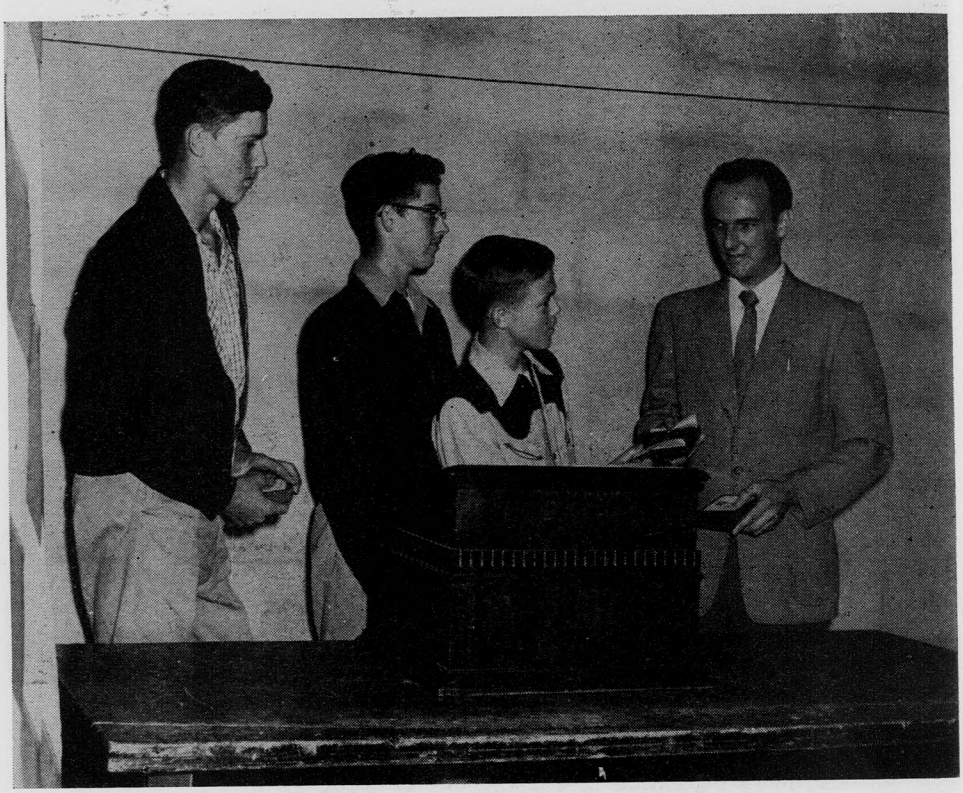
MARYLAND 4-H POULTRY JUDGING TEAM

burg, Md. These young men represent Maryland in the Northeastern Regional Poultry Judging Contest which is held in Boston in January. Whether or not they win all the honors, I am sure everyone will know that "Maryland is there."



JUNIOR TURKEY PRODUCERS — WHY NOT?

W. H. RICE, University of Maryland

According to data of the Maryland Crop Reporting Service of the U. S. Agricultural Marketing Service for the year 1951, Maryland farmers produced 6,032,000 pounds of turkey (eviscerated weight). While there are no consumption figures by States available, if the National consumption figure of 4.4 pounds per capita (eviscerated) is applied to Maryland, the total consumption by the State's residents for that year was 10,075,000 lbs. From this it can be seen that Maryland produces about 60% of the turkey meat its residents consume.

If the production of broiler turkeys, which are sold live wholesale and largely shipped and consumed outside the State were deducted, it would probably reduce the supply of holiday season turkeys produced in the State to less than half the consumption of turkeys by Marylanders for the winter holidays.

This situation offers excellent possibilities for profitable projects in turkey production for holiday season retail trade of oven-ready birds by 4-H and F.F.A. members. A group of 6 or more members organized to study and gain the "know how" of economical production and profitable dressing and marketing is a neglected field in Maryland Youth Programs. Local adult leaders who are interested in developing such a program among the boys and girls of their community will find a helping hand in their Assistant County Agent or F.F.A. teacher.

Flintstone F.F.A. Poultry Judges

Ronnie Slider and Royce Stafford won the Maryland F. F. A. Judging Contest and placed 4th in the Eastern F. F. A. Contest at Springfield, Mass., in Sept., 1953.

MORRIS POULTRY FARM, Inc.

BABY CHICKS

BISHOPVILLE MARYLAND

EHRLICH STOCKTON POULTRY CO., Inc.

TELEPHONE SNOW HILL 378

Fancy Dressed Poultry

STOCKTON, MARYLAND

MARYLAND 4-H POULTRY JUDGING TEAM

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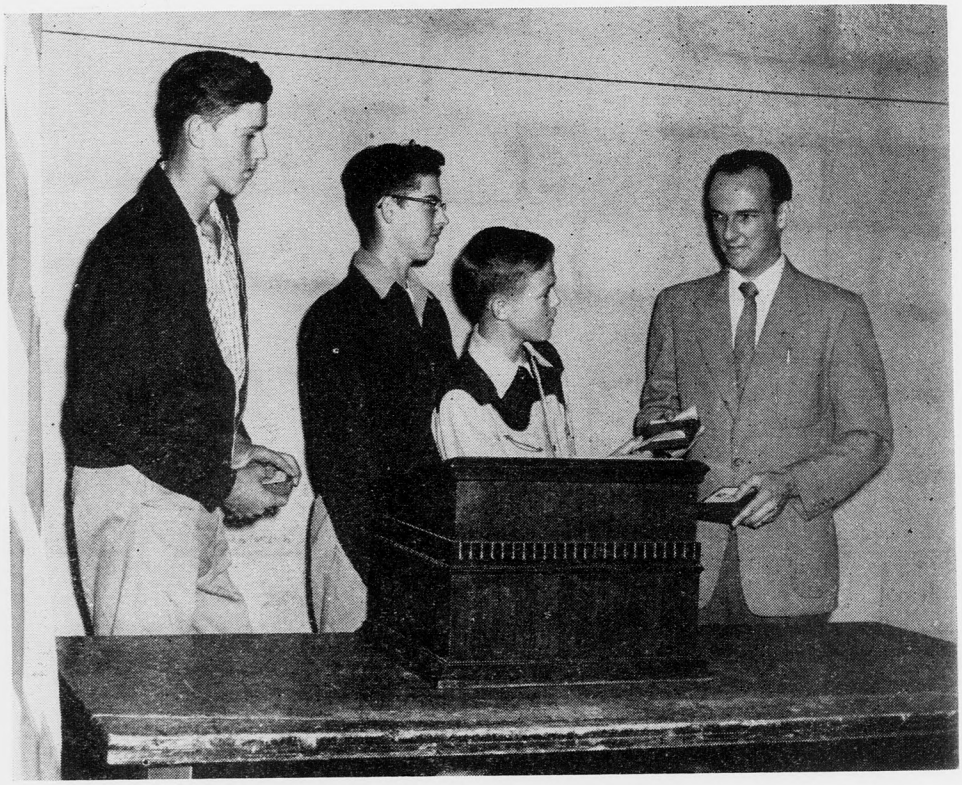

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- U.S.I. Vitamin B-12 Supplement is a product of primary bacterial fermentation using special anaerobic organisms. Also available in combination with either U.S.I. antibiotic — **procaine penicillin** or **bacitracin.**

CURBAY* B-G

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U.S.I. INDUSTRIAL CHEMICALS CO.

Division of National Distillers Products Corporation

120 Broadway, New York 5, N. Y.

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B-B-L WEIGHT MAKER

A High Energy, Low Fiber Broiler Ration

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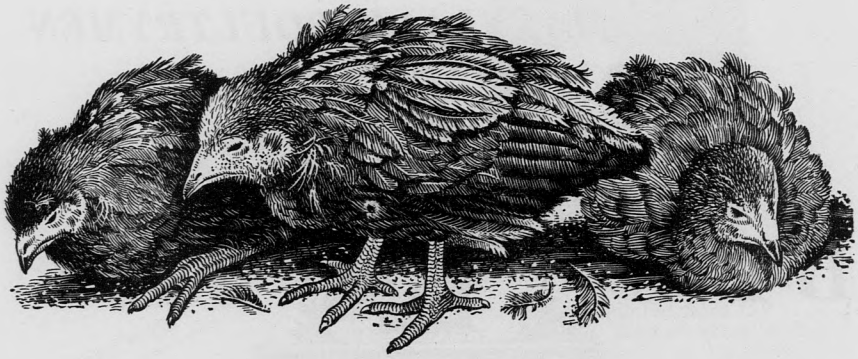
Poultrymen Need Not Risk Large Losses



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Proved superior for <u>both</u> prevention and control of coccidiosis outbreaks

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- Is effective for both *prevention* and *control.*
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- Protects even under warm, moist conditions.
- Permits birds to develop immunity to coccidiosis.
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Poultry Health Section

VITAMIN "K" AND HEMORRHAGIC DISEASE IN BROILERS

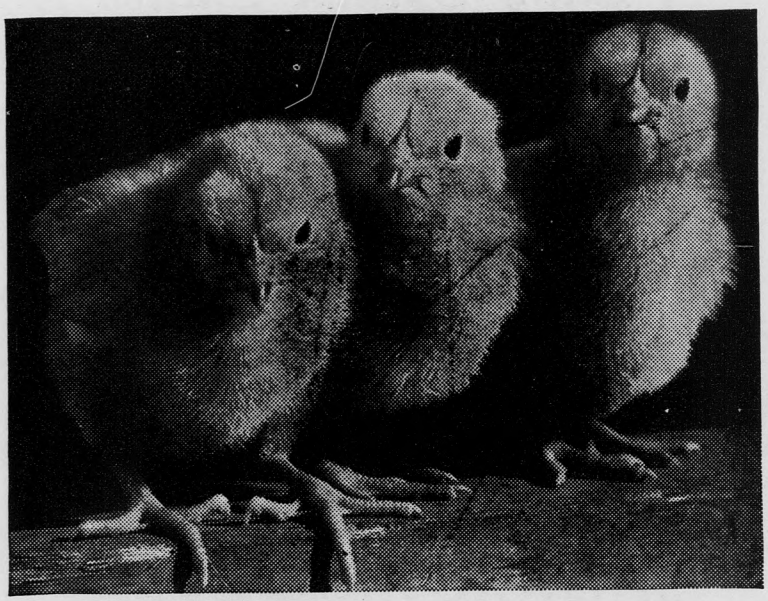
G. LYNN ROMOSER, Poultry Department, University of Maryland

Reports from broiler growers indicate that serious losses in flocks are being observed as a result of a hemorrhagic condition. This particular condition is characterized by hemorrhages which may appear in the skeletal muscles, heart, intenstinal wall, chamber of the eyes, under the renal capsule, and in the subcutaneous tissues. The hemorrhagic condition is usually manifest in broilers from about 4 to 12 weeks of age although most cases seem to fall within the 5 to 7 week period of growth. Several investigators who are intensively studying this problem have found that a relationship exists between the syndrome and a deficiency of vitamin K.

Workers at Illinois and West Virginia are studying this problem and have found that the blood clotting time of chicks fed a vitamin K deficient diet was about 10 minutes. Furthermore, the addition of such drugs as sulfaquinoxaline, arsanilic acid, and terramycin to the deficient diet prolonged the clotting time to 20 minutes. On the other hand, the addition of menadione bisulfite (a water soluble form of vitamin K) lowered the blood clotting time to 2-3 minutes (normal range). Since it is well known that certain intestinal bacteria can synthesize vitamin K, it is quite possible that the addition of certain drugs to the feed reduce synthesis by these bacteria in the intestinal tract. Penicillin or aureomycin did not prolong the clotting time.

Alfalfa is a good source of vitamin K; nevertheless, under field conditions this phenomenon has appeared in birds fed diets containing up to 5 per cent dehydrated alfalfa leaf meal which should supply an adequate level of the vitamin. This raises the question as to whether vitamin K is involved. In view of the fact that vitamin K is a fat soluble, solvent extracted soybean oil meal is low in vitamin K. Also, the possibility of decreased absorption of the vitamin in the absence of an adequate supply of fat in the feed cannot be overlooked. Moreover, certain drugs which are included in poultry feeds may competitively inhibit or otherwise increase the requirement of broilers for vitamin K.

Since the lesions in a vitamin K deficiency are similar to those observed in the hemorrhagic condition a possible relationship between the two is suggested. Although other factors may be involved which are completely unrelated to the nutritional aspects of the problem, vitamin K should not be disregarded until further research gives a more definite answer pertinent to the cause.



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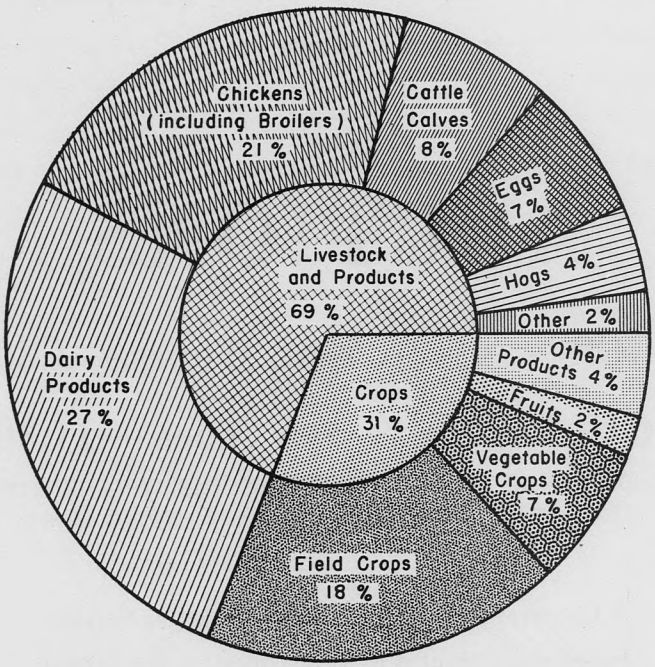
Statistical Section

MARYLAND - PERCENTAGE DISTRIBUTION OF CASH RECEIPTS FROM FARM PRODUCTS, 1952



MARYLAND CASH FARM INCOME 1952*

Commodity	Cash Receipts (Dollars)
LIVESTOCK AND PRODUCTS	$179,874,000
Dairy Products	69,501,000
Chickens (Including Broilers)	54,158,000
Cattle and Calves	21,159,000
Eggs	18,524,000
Hogs	11,615,000
Other Livestock	4,917,000
CROPS	$ 81,235,000
Field Crops	47,509,000
Vegetable Crops	17,996,000
Fruits	4,770,000
Other Products	10,960,000
ALL COMMODITIES	$261,109,000

*Source: Maryland Crop Reporting Service, B.A.E., U.S.D.A.

Westminster Cooperative Poultry Products Auction, Incorporated

GEORGE C. BROWN, Manager

AUCTIONS

EGGS - - - - Mon., Thurs.—1:30

POULTRY - - - - Tues.—11:30

A Cooperative Poultry Products Marketing Service
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WESTMINSTER, MD.

CARROLL COUNTY

PHONE 571

MARYLAND CASH FARM INCOME FROM POULTRY AND POULTRY PRODUCTS 1952*

Product	Cash Receipts (Dollars)
Commercial Broilers	$49,800,000
Eggs	18,524,000
Farm Chickens	4,358,000
Turkeys	3,301,000
Other Poultry	643,000
ALL PRODUCTS	$76,626,000

*Source: Maryland Crop Reporting Service, B.A.E., U.S.D.A.

MARYLAND - PERCENTAGE DISTRIBUTION OF CASH RECEIPTS FROM POULTRY AND POULTRY PRODUCTS, 1952

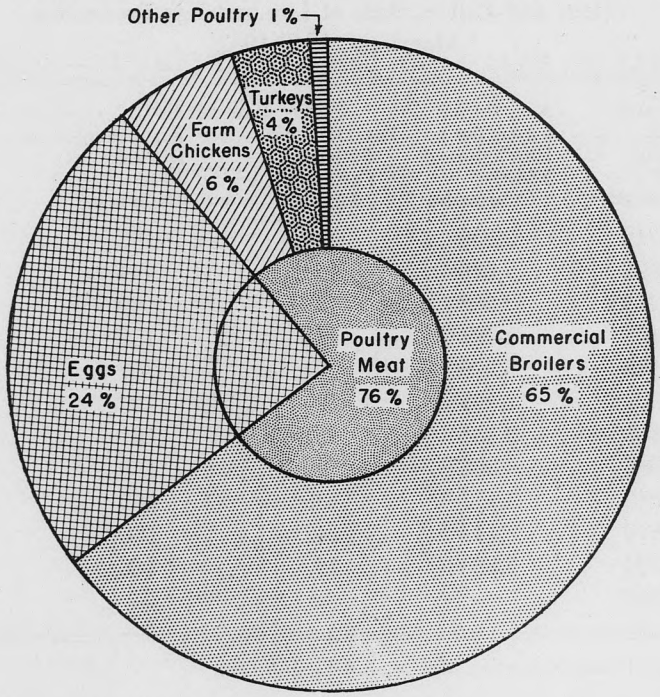

TABLE 1—NUMBER OF LAYERS AND EGG PRODUCTION BY MONTHS[1]

United States 1952-1953 (to Oct. 1)

Month	Ave. No. layers on hand during month (Thousand)		Eggs Produced per 100 layers during month (No.)		Total Production Total Egg Production (Million Eggs)	
	1952	1953[1]	1952	1953[2]	1952	1953[2]
January	384,421	375,912	1,395	1,447	5,362	5,441
February	375,281	364,205	1,510	1,463	5,668	5,328
March	360,258	351,088	1,773	1,794	6,386	6,298
April	341,707	336,415	1,799	1,811	6,146	6,094
May	323,889	319,729	1,833	1,837	5,938	5,872
June	306,170	304,378	1,630	1,659	4,991	5,051
July	292,320	293,967	1,516	1,579	4,431	4,642
August	294,422	295,769	1,401	1,469	4,125	4,346
September	320,554	321,000	1,273	1,310	4,081	4,206
October	351,776		1,243		4,371	
November	371,725		1,205		4,480	
December	380,473		1,324		5,037	

[1]**Source:** Maryland Crop Reporting Service, B.A.E., U.S.D.A.
[2]**Preliminary**

TABLE 2 — CHICKENS AND EGGS

Hens and Pullets, Rate of Lay and Egg Production
Maryland, 1942-1953[1]

Year	Hens and Pullets on Farms Jan. 1 (Thousands)	Ave. No. of Layers on Hand during Year (Thousands)	Rate of Lay Per Hen and Pullet on Farms Jan. 1 (Number)	Rate of Lay Per Layer During Year (Number)	Eggs Produced During Year (Millions)
1942	3,710	2,954	114	143	422
1943	4,002	3,070	111	144	443
1944	4,463	3,385	113	149	505
1945	4,149	3,227	118	152	490
1946	4,188	3,226	121	157	507
1947	3,975	3,193	126	157	500
1948	3,868	3,135	131	161	506
1949	3,686	3,068	140	168	516
1950	3,842	3,171	136	165	524
1951	3,670	3,147	142	166	522
1952[2]	3,704	3,095	139	166	515
1953[2]	3,517	—	—	—	—

[1]**Source:** Maryland Crop Reporting Service, B.A.E., U.S.D.A.
[2]**Preliminary**

TABLE 3 — TURKEYS

Farm Production, Disposition and Income

Maryland, 1942-1952[1]

Year	All Turkeys Produced on Farms		Turkeys Consumed on Farms		Turkeys Sold	
	Number Thousands	Value 1,000 Dollars	Number Thousands	Value 1,000 Dollars	Number Thousands	Value 1,000 Dollars
1942	400	2,118	11	58	397	2,101
1943	360	2,157	12	72	357	2,138
1944	423	2,822	10	67	402	2,682
1945	485	3,213	11	75	463	3,138
1946	462	3,550	12	90	462	3,460
1947	393	2,996	12	89	393	2,907
1948	318	3,057	13	124	308	2,933
1949	413	3,102	12	91	398	3,011
1950	435	3,220	13	98	416	3,122
1951	457	3,437	11	84	439	3,353
1952[2]	526	3,396	15	95	518	3,301

[1]Source: Maryland Crop Reporting Service, B.A.E., U.S.D.A.
[2]Preliminary

TABLE 4 — TURKEYS— NUMBER AND VALUE ON FARMS

Maryland, January 1, 1942-1953[1]

Year	Number (Thousands)	Value Per Head (Dollars)	Total Value (1000 Dollars)
1942	78	3.70	289
1943	70	5.50	385
1944	61	6.10	372
1945	72	7.00	504
1946	83	6.90	573
1947	71	7.00	497
1948	59	8.00	472
1949	56	10.00	560
1950	59	7.00	413
1951	65	6.80	442
1952	72	7.50	540
1953[2]	65	7.00	455

[1]Source: Maryland Crop Reporting Service, B.A.E., U.S.D.A.
[2]Preliminary

TABLE 5 — COMMERCIAL BROILERS

Production, Price and Income — Maryland 1942-52[1]

Year	Number Produced (Thousands)	Pounds Produced (Thousands)	Price Per Lb. (Cents)	Gross Income (Thousand Dollars)
1942	28,000	92,400	22.3	20,605
1943	34,100	108,800	28.3	30,790
1944	30,000	96,000	27.6	26,496
1945	39,900	127,680	28.1	35,878
1946	31,122	99,590	30.1	29,977
1947	34,545	110,544	29.7	32,832
1948	38,345	122,704	34.7	42,578
1949	48,315	149,776	27.0	40,440
1950	54,596	163,788	26.0	42,585
1951	60,602	181,806	27.1	49,269
1952[2]	56,966	176,595	28.2	49,800

[1]Source: Maryland Crop Reporting Service, B.A.E., U.S.D.A.
[2]Preliminary

TABLE 5-B — BROILER CHICKS PLACED AND BROILERS MAKETED IN 1953[1]

From January Through September in the Delmarva Area

Month	Chicks Placed[2] (Thousands)	Broilers Marketed[2] (Thousands)
January	14,597	10,880
February	11,248	10,244
March	13,673	12,839
April	13,430	12,693
May	13,094	13,668
June	11,997	13,936
July	12,134	12,316
August	10,995	12,121
September	10,887	10,899

[1]Source: Maryland Crop Reporting Service, B.A.E., U.S.D.A.
[2]Preliminary

CENTRAL WARM AIR HEATING SYSTEM
FOR POULTRY HOUSES
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Phone 5432 **Salisbury, Md.**
COMMERCIAL — RESIDENTIAL
SALES — SERVICE

TABLE 6 — PRODUCTION AND CONSUMPTION

Of Chicken Meat and Egg Consumption in United States — 1942-1952[1]

Year	Commercial Broiler Production (Lv. Wt.) (Million Lbs.)	Total Consumption of Chickens (Dressed Wt.) (Million Lbs.)	U.S. Population Apr. 1 (Mils.)	Chicken Meat[2] Production Farm and Non-Farm Chickens Percent	Chicken Meat[2] Production Broilers Percent	Consumption Per Capita Chickens (Lbs.)	Consumption Per Capita Eggs No.
1942	674	3097	134.5	82	18	23.4	316
1943	833	3959	136.3	82	18	30.5	345
1944	818	3467	138.0	82	18	26.8	352
1945	1107	3726	139.6	77	23	28.5	400
1946	884	3584	141.0	79	21	25.5	377
1947	936	3346	143.5	76	24	23.1	381
1948	1127	3374	146.0	70	30	22.9	387
1949	1570	3724	148.6	64	36	24.9	381
1950	1938	3987	151.1	58	42	26.2	386
1951	2463	4413	153.7	52	48	28.8	397
1952	2695[4]	4604	156.4	49[4]	51[4]	29.6	407
1953[4]			159.1			29.2	395

[1]Sources: B.A.E., U.S.D.A., and Bureau of the Census.
[2]Based upon liveweight.
[3]Includes consumption on farms and sales, plus 10 percent of same to allow for non-farm production.
[4]Preliminary.

WHERE-TO-BUY-IT-GUIDE

These firms believe in Maryland's Poultry Industry. You will be pleased when you patronize them.

Automobiles—Service

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Duncan Brothers, Pocomoke	24
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Matthews Motor Co., Pocomoke	28
Testerman Motors, Princess Anne	6

Banking Service

Bank of Crisfield	16
Bank of Somerset, Princess Anne	59
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Calvin B. Taylor Banking Co., Berlin	80

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Dr. Salisbury's Laboratories	58

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Fox Products Company	68
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M. & D. Sales Company	10
U. S. Industrial Chemicals	88
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Whitmoyer Chemists	26

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Bradley's Hatchery	68
Carmean's Hatchery	48
Christie Poultry Farms	14
Cluff's Hatchery	68
Cobb's Pedigreed Chicks, Inc.	81
Cumberland Valley Hatchery	30
Dryden's Hatcheries	80
Esham's Hatchery	6
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Hastings Hatchery	46
Klahold, Harold P.	67
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George M. Anthony, Strausstown, Pa. 26
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Wilson's Poultry Farm, Rising Sun 30

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Glasgow and Davis 76

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Caroline Supply Co., Southern States 66
Dorsey Brothers, Westover 86
Farmers' Supply Company, Princess Anne 27
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Feed—Ingredients and Specialties

Amburgo Co. (Supplements) 75
Harry T. Campbell Sons Co. (Camel Shell) 3
Kaylorite Corporation (Kaylorite) 51
NOPOC Chemical Company (Vitamins) 87
A. E. Staley Co. (Supplements) 72

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Adams Feed Co. (Purina) 67
Roland W. Beauchamp (Red Comb) 40
Blades & Phillips (Beacon-Tuxedo) 64
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Feed—Manufacturers

Allied Mills, Inc. (Wayne) 26
Baltimore Feed and Grain Co. (B.B.L.) 89
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Hales and Hunter (Red Comb) 14
Maritime Milling Co. (Maco) 49
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Southern States Cooperative (Coop) 8
D. A. Stickell & Sons, Inc. (Blue Ridge) 36
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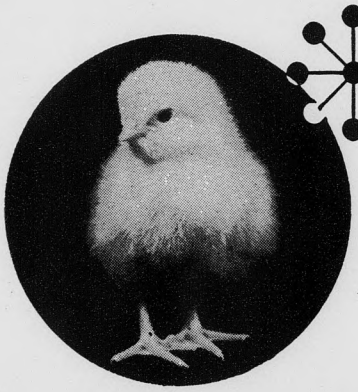

Mother Influence -- the Nichols factor that makes good broiler crosses great.

A FAMOUS NAME... A FAMOUS STRAIN
NICHOLS
NEW HAMPSHIRES

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POULTRY FARM, INC.
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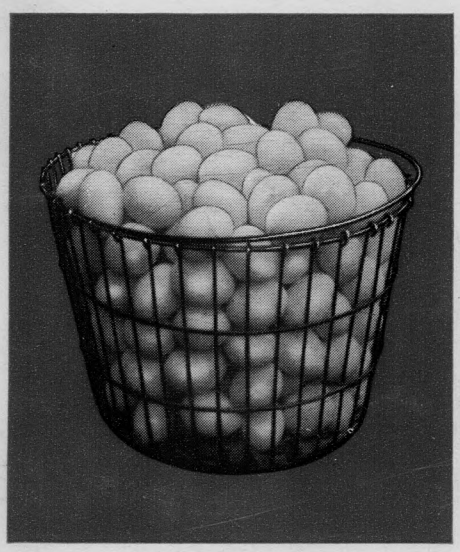
Beacon POULTRY FEEDING GUIDE

Eggs Aren't Made from "Energy" Alone!



There has been too much talk about "high energy" and not enough about "high efficiency" in feed. If we are concerned only with energy values we could feed the birds just straight corn meal or ground milo maize or kaffir corn or ground wheat, or wheat red dog flour. Any poultryman knows that you can't grow good pullets or get high production on that kind of a diet. Further, anyone who has fed rations too high in corn for extended periods realizes the dangers of accumulation of fat in the abdomen, excessive losses from cannibalism, prolapse, and the danger of producing egg yolks of too dark a color to meet the premium market requirements.

The discussion of energy values has tended to obscure these considerations and the whole nutritional picture. Birds have requirements not only for energy values but for proteins and a long list of vitamins and minerals. We think most nutritionists would agree that the most important part of any poultry ration, whether used for growing chicks or laying birds, is the animal protein portion, particularly such high cost material as steam dried fish meal, which supplies both unknown growth factors and a superior assortment of the essential amino acids. It is, of course, obvious that a corn meal and soybean combination can be made and sold at a very low price and, if price is the first consideration, then the poultryman should not be disappointed if he gets poor results.

"Energy" vs. "Efficiency"

Beacon uses both corn and ground wheat for high energy in its poultry rations—but Beacon Feeds are "high efficiency" feeds fortified with every known essential nutrient, to produce birds capable of sustained high production!

Get all the facts about Beacon's Controlled Feeding Program—either the all-mash program with supplementary pellets for automatic feeding or the mash, grain and pellet system for hand feeding. See your local Beacon dealer. Beacon dealers are located from Maine to Virginia and West Virginia inclusive.

The BEACON MILLING CO., Inc.
Cayuga, N. Y.

Eastport, N. Y. Laurel, Del. York, Pa.